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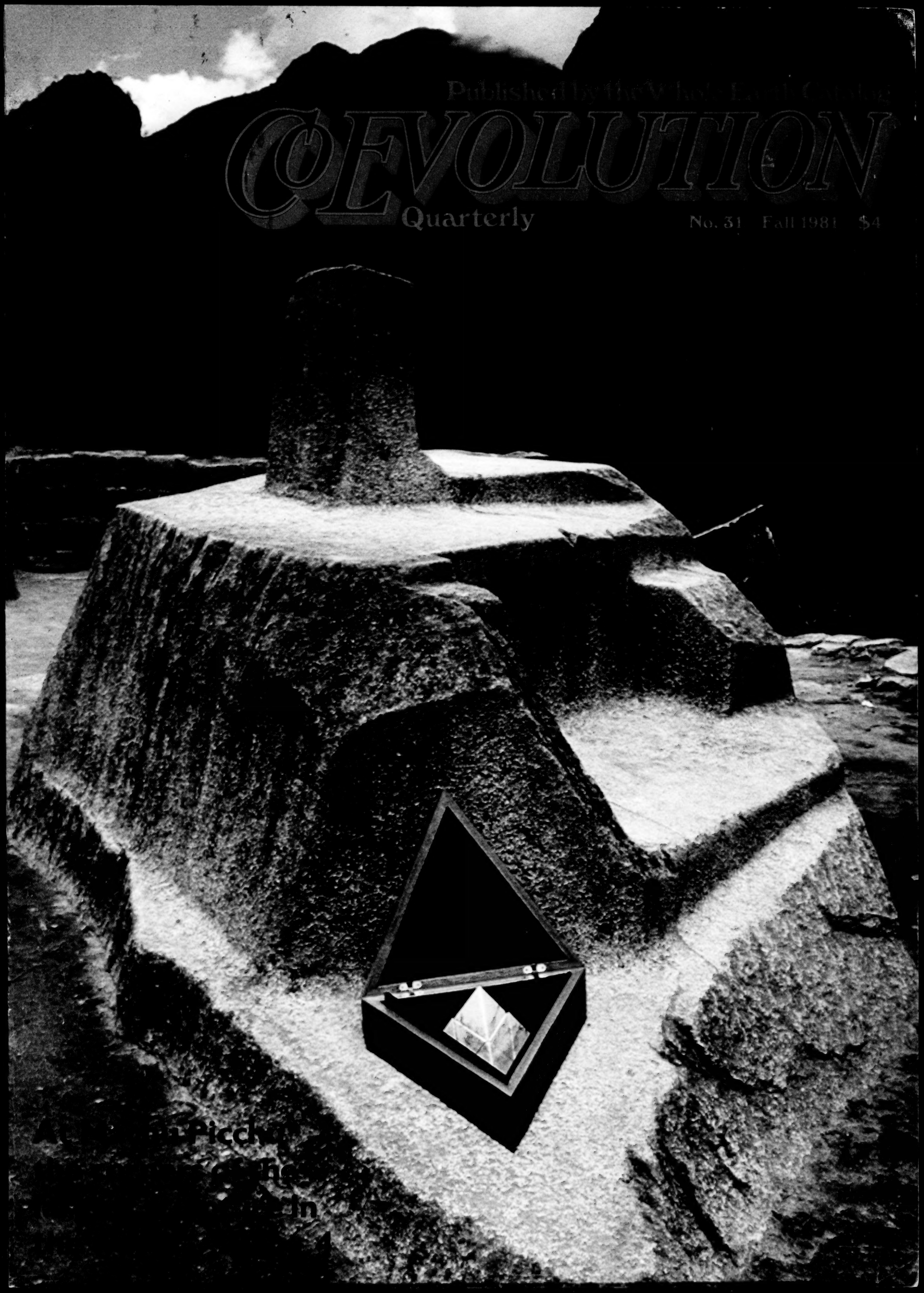
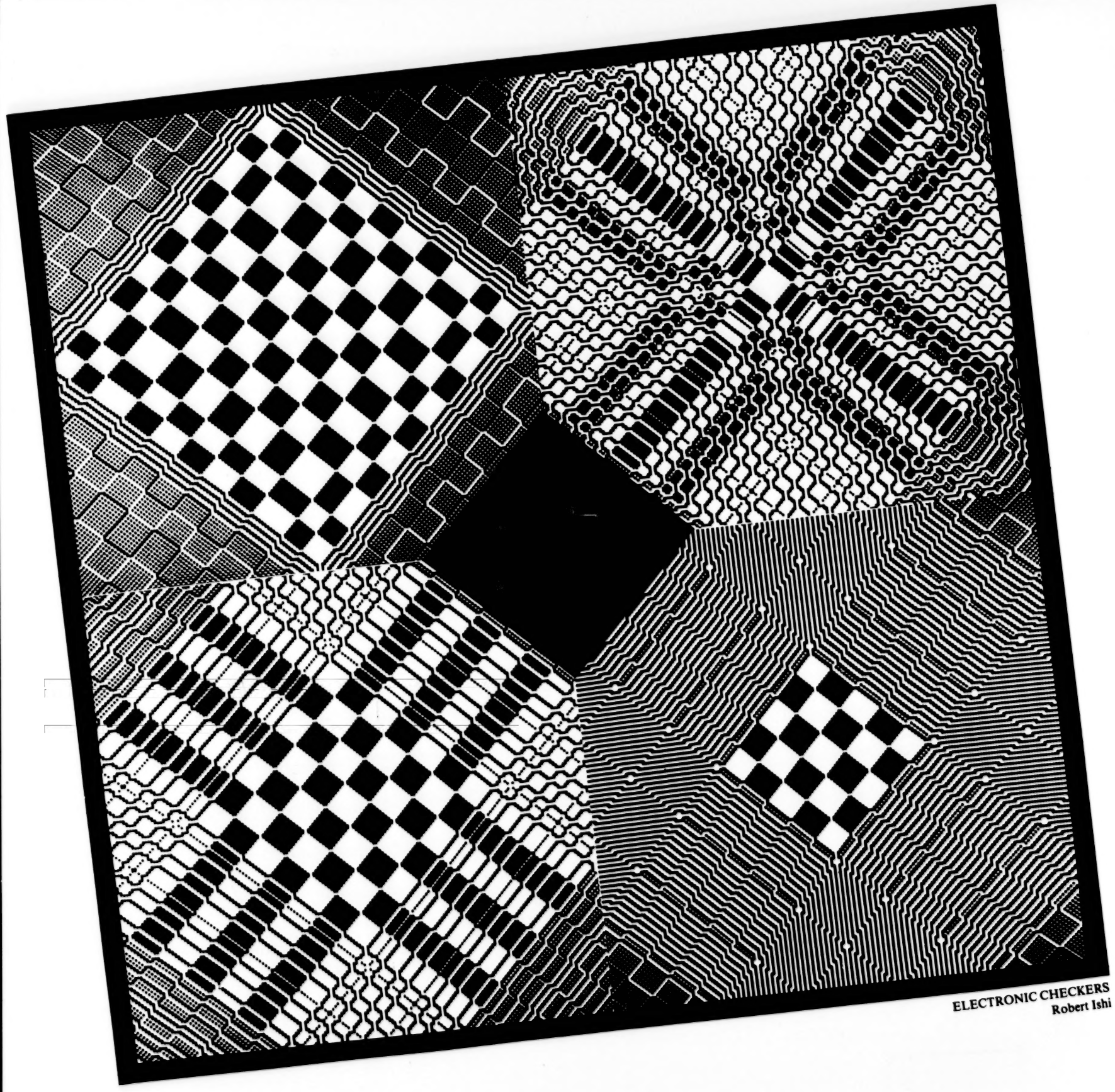


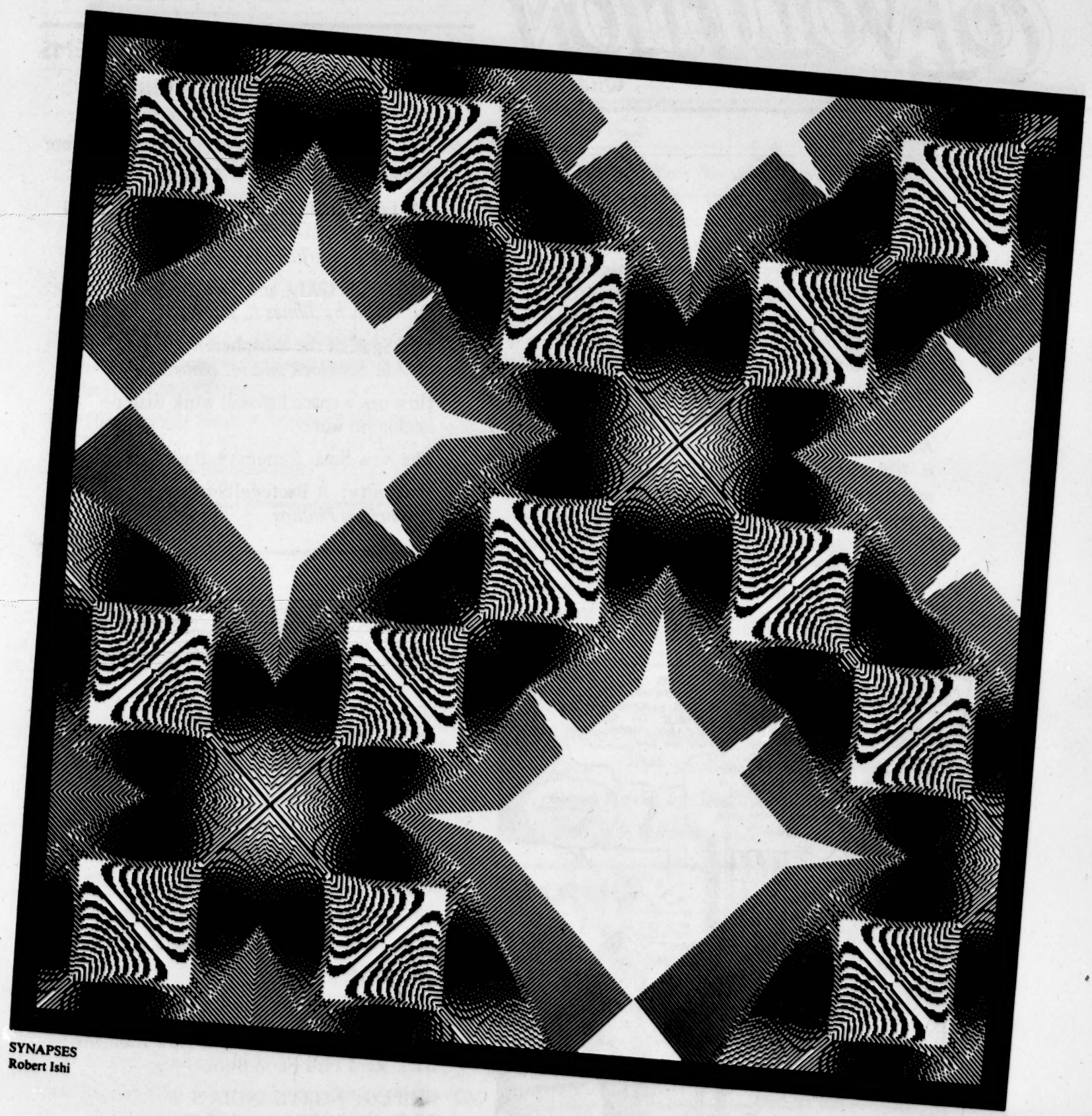


ELECTRONIC CHECKERS
Robert Ishi

MICROCOMPUTER ART

A tiny chip of silicon helped me create these graphics. Admittedly, the chip is rather special — it's a Synertek/MOS Technology 6502 microprocessor. This tiny computer-on-a-chip runs at 1,023,000 machine cycles per second and can do over 500,000 addition or subtraction operations in one second. It's the brain in my Apple II microcomputer.

Of course, computer-generated art is not new. What is new, however, is the accessibility of computer power to the average artist. No longer is such power restricted to highly trained specialists time-sharing on multimillion dollar machines. The microcomputer offers a powerful new tool for visual expression. I predict that we will see the rapid emergence of creative new imagery based on the use of microcomputers — a positive fallout of the computer revolution.



SYNAPSES
Robert Ishi

As a graphic designer, I've had the opportunity to design some books that have appeared in the pages of *CQ* (Weizenbaum, *Computer Power and Human Reason;* Mandelbrot, *Fractals;* Kessel/Kardon, *Tissues and Organs, An Atlas of Scanning Electron Microscopy; . . .).* Right now, I'm working on a very interesting book by Lynn Margulis — *Five Kingdoms, An Illustrated Guide to the Phyla of Life on Earth.* It is based on a new classification of life forms and has photographs and drawings for each and every phylum. I understand that she sent some of her grad students to the far corners of the Earth to get photos of some of these exotic critters. The book should be out by the end of the year.

Robert Ishi
Oakland, California

No. 31 Fall 1981

CoEVOLUTION Quarterly

COVERS

The front cover, as you will find in the article beginning overleaf, depicts the entire sculpted portion of the largest and most precise sculpture in the world (as opposed to on Earth). It's sort of a minimalist Christo kind of piece — minimum artifact, maximum natural resource. Four little marble tetrahedrons, placed just so, succeed in decorating the planet with great elegance and profundity.

The back cover is a bit tantalizing. The scene of course is a Sherpa settlement in Mount Everest National Park, Nepal. The photo appears again on p. 108 with Kevin Kelly's "Low-rent Himalayas," another exercise in his virtuoso peripatetic serendipity. For an utter beginner he is a criminally good photographer, all of his stuff in color slides naturally. We reproduce them in various shades of gray. But if you take his advice and hie to the highest high country, you will find that the original also is in color. —SB (Stewart Brand)

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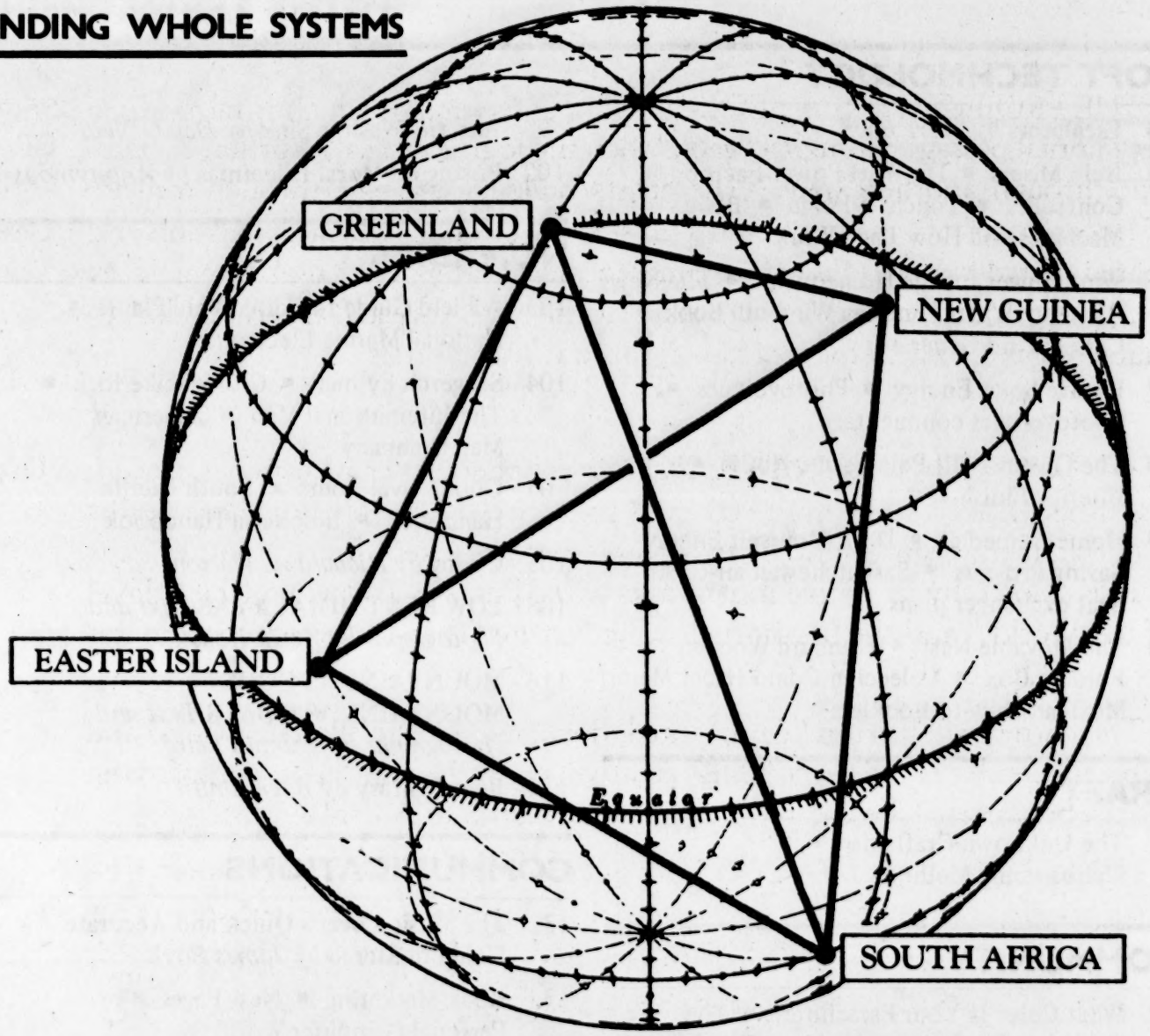


FOUR CORNERS OF THE WORLD

by David Barr

THE FOUR CORNERS PROJECT is the construction of the world's largest sculpture using the least amount of material. It consists of an invisible tetrahedron spanning the inside of the Earth with the outer four corners just protruding from the crust of the Earth. These visible corners are to be located in Easter Island, South Africa, New Guinea, and Greenland, with the imaginary planes extending through the Earth from each corner to the other three. This corner will be a buried pinnacle of marble (itself a small tetrahedron) barely protruding from the ground like a plant sprouting through the Earth's crust. This briefly described project has laminations of data and concepts which give it endurance beyond its temporal physical character.

This future-tense proposal is now in the process of realization. Barr has been to Machu Picchu, Easter Island (buried a bit of the Great Wall of China along with the marble corner of his sculpture there), South Africa (some rock from the same quarry as the Easter Island gigantic heads joined the marble corner), and as I write he is in Greenland via Otter ski plane with the third corner. A structurist akin to Christo and Robert Smithson, Barr has been a professor of art for 15 years in Michigan. The geographer on the project is John Nystuen of the University of Michigan. (It's no cinch to get the four corners of a tetrahedron to fall on land surfaces on a planet two-thirds covered with water.)

Barr notes, "The Four Corners Project is dedicated to Robin A. Doran whose cheerful, loving character personifies the conduit of genuine human connection."

—SB

SEQUENCE OF CONSTRUCTION

THE PROJECT HAS A SEQUENCE of construction which is begun by a ceremonial passage through a "gate," then the journey to each corner, then an exit through another "gate." The artists/builders will pass through a metaphorical "gate" of Machu Picchu. This site was created by Inca civilization and spared destruction because of its remoteness. It is a "gate" in that it represents the purity and precision of art/science forms with invested meaning akin to that also generated by the societies at the four corners sites.

Gate of Entry

The Corners

TO LOCATE A TETRAHEDRON in a sphere: if one corner is placed, the other three corners must rest on a great circle. Once one of those points is determined, then the other two points become fixed. Easter Island (Rapa Nui) is known by its native inhabitants as Te Pito No Te Henua, the "Navel of the World," and the first corner will be created there. Its exact coordinates are 27° 6' 20" S, 109° 25' 30" W.

The corner will be ritually implanted, documented with film, drawings, and journals, and the corresponding creative responses of the accompanying artists/builders will be incorporated into the matrix that is the project.

Next is Reivilo, South Africa (near Kimberly, known for its diamond mines). The exact coordinates are 27° 30' 36" S, 24° 6' E, which places it on the Farm Karee Boom. Again, the corner will be carefully sited, constructed, and documented.

Irian New Guinea follows with the same procedure at 2° 6' 36" S, 137° 23' 24" E. And, finally, Greenland where 72° 38' 24" N, 41° 55' 12" W is on the ice cap three km above sea level.

Gate of Exit

THE GATE OF EXIT is in the Zen garden of Ryoan-ji in Kyoto. It has resisted the devouring frenzies of the twentieth century and represents the serenely contemplative. The garden is designed so that the placement of the rocks can never be altogether observed from any one point of view. This structural attribute like that of the Four Corners Project is intended to instill humility.

Data

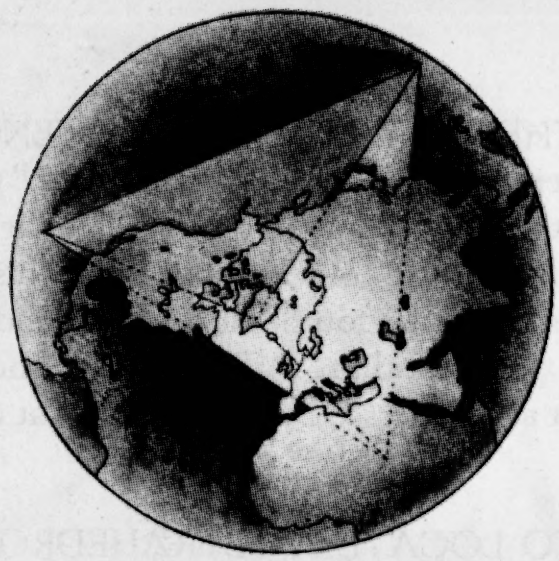
AS THIS PROJECT WAS DESIGNED and refined, it accumulated strata of thought, distinctions, and content. It is anticipated that actualizing the project will both modify and expand those layers. At this ignition point, however, a number of such observations can be shared.

The project is a primary color/form symbolically uniting primary cultures.

These specific sites were chosen for placement of the corners in a conscious attempt to symbolically reverse the western world's history of plundering. A technological, middle-class culture will be going to primary sources, not to remove, but to connect, to implant with meaning in cultures that evolved symbolic meaning. It is a first world pilgrimage to the third world as a gesture of international homage.

Within its essentially polar character it contains numerous other polarities:

fire/ice
mountain/desert
tribal/technological
man/woman
young/old
2D/3D
low/high
literate/nonliterate
jungle/arctic



It will be the largest sculpture that can be built on (and of) the Earth, and yet require the minimum amount of material (all of which will recycle into the environment with time). The sides of the resultant tetrahedron will be 6464.79 miles long. It will be a color/form of such scale that like the planet itself it is impossible to perceive all of it. It is an invisible structure, tangible in the human imagination. Its viability derives from it being a comprehended idea. Its process of construction and communication will be a cultural/geographic/spiritual/esthetic metaphor.

The angle of conjunction of the interior tetrahedron and the spherical surface of the Earth is 109° 28', which is a replica of the carbon molecule. Thus, the largest invisible color/form resembles life's most intimate molecular essence.

The oldest rocks discovered are from Greenland and contain carbon isotopes. Kimberly has the deepest man-made hole in the world as a result of its mining of diamonds (carbon in its hardest form).

Gate of Entry—the marble corners in their case at Machu Picchu

The Project is the phrase "four corners of the world," converted into a three-dimensional reality, distinct from the literate concepts of maps and compass points. It is connective of primarily three-dimensional cultures (which are heavily non-literate) as joined by a primarily two-dimensional culture (relatively literate).

Geologists hypothesize that the Cambrian age was a geological birth consisting of four continents.

The proposed year of the Project, 1981, is also the year in which international geographers are remeasuring (via laser satellites, etc.) and recording the Earth.

Greenland is the largest island in the world. New Guinea is the second largest. Easter Island (14 miles long) is one of the smallest sophisicated and most isolated cultures in the world. And Africa is currently considered the cradle of the human species.

The tetrahedron is the most basic three-dimensional form and the only one where every corner directly connects to every other corner. If two vectors equidistant form a line, and three vectors form a triangle, then four vectors equidistant form the tetrahedron—the first nonplanar figure. The center of the tetrahedron is also the center of the Earth. Half the radius of the Earth (the vector of the tetrahedron) would produce a sphere that would exactly reside inside the tetrahedron.

The tetrahedron, consisting of the Earth and being equidistantly situated, is weightless in relationship to Earth's gravity. Thus the largest sculpture is paradoxically weightless.

Because of its scale (and thus proportion of error to size), the alignment of the corners will produce the most "accurate" man-made structure on Earth.

Each visible corner is a gnomon of the entire tetrahedron.

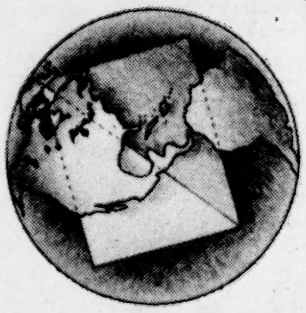
The corners can be located precisely equidistant with mathematics, maps, charts, and finally transit and compass readings.

Within a quarter mile of each corner a small radar reflector will be located. This will fix coordinates for the world's largest inner space as recorded from "outer space."

The marble tetrahedron that caps each corner will come from one piece of carved Vermont

David Barr and work of prior sculptors on Easter Island

Embedding one corner at Easter Island



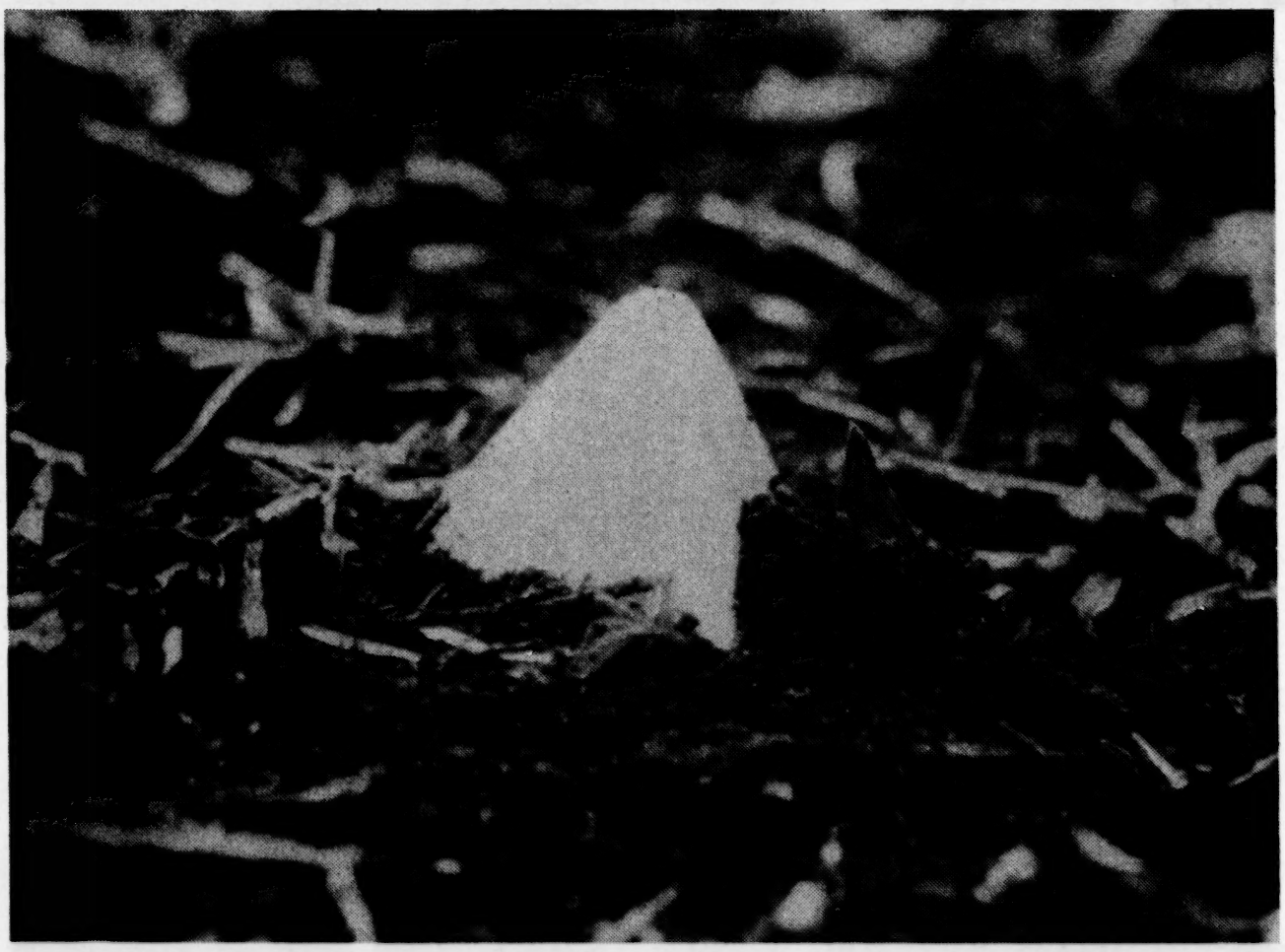
white marble. Removing the four equal corners of the tetrahedron leaves an octahedron or double pyramid. These four pinnacles, which were initially united, are then redistributed as far from each other as possible on Earth, but retain their original configuration.

The largest structure of the Earth will materialize from a portable wood case cradling the original tetrahedron. This case itself becomes the project's reliquary.

Simple rituals will be part of the installation with music, dance, poetry, and visual arts incorporated. The media of the art world will be one conduit to a public consciousness, as there will be drawings, photographs, films, journals, found objects, globe models, charts, satellite maps, etc. Since this project is fundamentally about connecting people, a record will be developed of every individual woven into the project, and the nature of their involvement. There will be documentation of all the people in this process of collaboration, the team of artists/builders, the geographers, the patrons, the curators, the conveyors, the researchers, the guides, the inhabitants of the area, etc. It is also anticipated that as a result of the project other unpredictable creative responses will be germinated.

This project, as an act of constructive creation, has at its core a faith in humanity and a faith that when we are united by the arts, the world community is most loving, most sane, and most human. The structures that bind humans through interests, needs, relationships, heritage, intellect, faith, and understanding are an invisible filigree of connective links, a filigree that embraces thousands of people in the past, present, and future. When our spirit is enlarged, enriched, and enjoyed, through connection, it moves quite naturally toward the celebration of that reality. The culmination of connection is celebration in its most transcendent form.▲

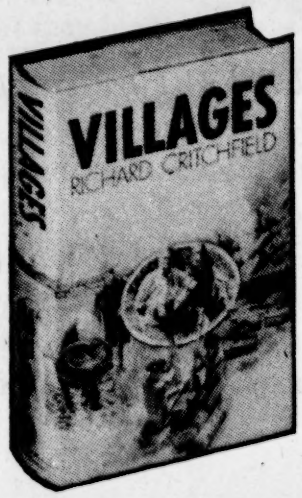
Easter Island tip of the largest sculpture in the world



Villages

"The world's peasant masses, that silent majority who outnumber us in the West more than three to one." Villages are the flywheel of true conservatism in a giddy age. They are agricultural bedrock, they are the first to suffer when times are hard, they are the source of transnational labor forces and of barrio populations, and they are a mystery to most of us. This facinating book by an anthropologically inclined journalist who has dwelt in villages all over the world demonstrates that the world's villages are both more unique and more like each other than the world's cities. Much of what constitutes world "news" is city dwellers being baffled by the lives and motivations of village dwellers, whether in Vietnam, Iran, Afghanistan, or China. *–SB*

Villages
Richard Critchfield
1981; 388 pp.
$17.95 postpaid from:
Doubleday and Company
501 Franklin Avenue
Garden City, NY 11530
or Whole Earth
Household Store



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We Americans are one of the few peoples who never had a peasant tradition of our own we might draw upon books about villages are rare in American literature. Pearl Buck's **The Good Earth** is a notable exception, but it's about China.

•

Like most of us, villagers live under pressure, from the weather, from friction within large, gossipy households, from prying neighbors, from the state demanding larger surpluses or conscripting sons, even from fluctuations in Chicago's world grain market. Pressures affect villagers unevenly (locusts or hailstorms destroy one man's crop and not his neighbor's; one man has fewer children and more land, another only daughters), but scarcity of land and the city's demand for food are the two most common pressures.

Yet on a day-to-day basis, there is little stress in village life. Whenever I come home, it takes a few days to get used to all the noise (all those electronic voices coming at you), the fast speeds of cars and how busy and punctual everyone is. . . .

What strain and anxiety there is in villages tends to come from personality conflicts. But fun is other people, too; villagers are fascinated by each other's doing; it's their chief form of entertainment. In a village there's little competition, and nobody has to come to terms with diminished career expectations or learn to live with their limitations. It takes opportunity to cause striving.

•

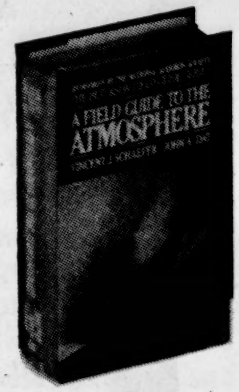
Supernatural Supports to Religion: This is one of the great psychological divides between villagers and ourselves; they invariably tend to believe in good and evil omens, witchcraft, sorcery, magic, demons, ghosts, the Evil Eye of the envious or merely admiring neighbors, herbal remedies, faith healing and protective amulets and talismans; villagers tend to seek and accept explanations of natural phenomena and human behavior in the supernatural rather than in modern, scientific logic, even when they know better; there is a similar tendency to prefer traditional cures and herbs, especially if there is magic involved, to modern medical practices (injections are much preferred to oral medicine, possibly for this reason); belief in the supernatural is reinforced in villages by much more frequent occurrences of apparent psychic phenomena than in the modern West.

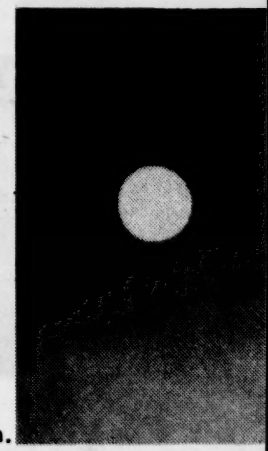
A Field Guide to the Atmosphere

"It was a dark and stormy night." Most fiction seems to begin with a weather report. For good reason – nothing so quickly establishes a locale and mood. Also nothing so connects a place with everywhere else on Earth, and with the grand procession of the year and years, as the daily weather. Observe it and you observe them.

This lovely guide is the most detailed of all weather books. The captions not only tell you what clouds those are but how they got that way, and pretty quickly you catch on how they fit in the grand scheme of things – jet streams, various crystal effects, and such. Any window on the sky becomes a cure for boredom. *–SB*

A Field Guide to the Atmosphere
Vincent J. Schaefer
and John A. Day
1981; 359 pp.
$14.95 postpaid from:
Houghton Mifflin Company
Mail Order Department
2 Park Street
Boston, MA 02107
or Whole Earth
Household Store





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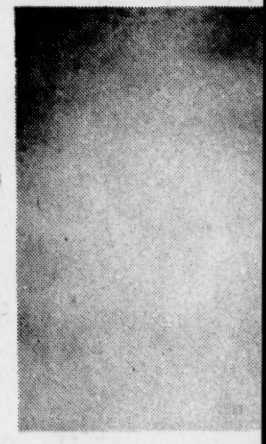
Sharp outline of sun or moon seen through a cloud is evidence that cloud consists entirely of small water droplets. Colored corona occurs if droplet size is uniform.

→

When outline of sun or moon is fuzzy or diffuse, as seen through a piece of ground glass, the air contains large numbers of ice crystals. This often occurs as a warm front approaches.



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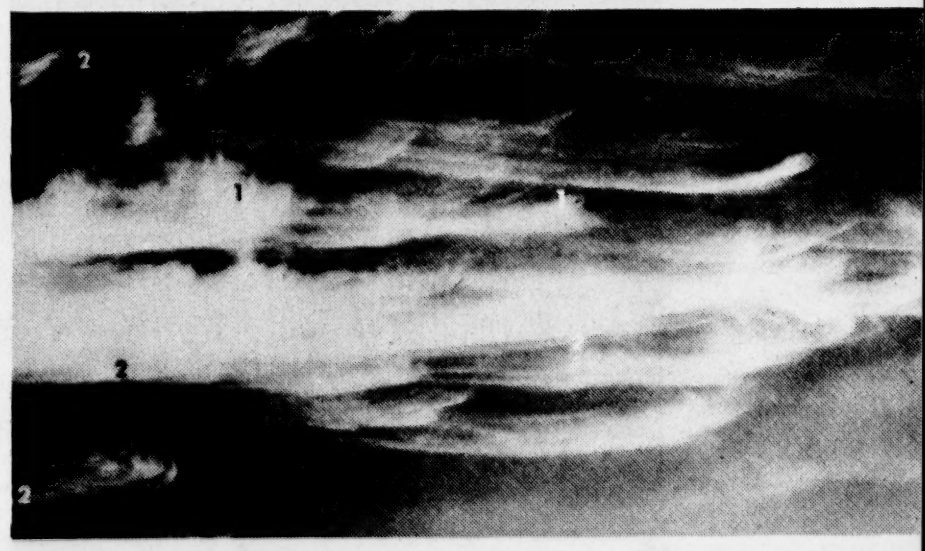
Ice crystal clouds that present themselves in varied shapes and forms in the colder-than-freezing levels are called cirrus. Except in the winter season, these clouds are found at high elevations. As the growing ice crystals become larger they get heavier and fall earthward. Though the streams of falling ice crystals generally evaporate while still in the high atmosphere, such clouds are classified as belonging to Group IV because they are generating precipitation. The strange, distorted forms taken by the wisps of falling crystals that constitute the cirrus cloud result from the differing wind speeds and directions in the various lower layers.

Shown here are the principal generating centers, 1) of the ice crystals and the trails, 2) of falling crystals. The regions of thick and thin cloud are related to the relative activity of the precipitation process. We infer that the high-level winds are blowing from left to right, with upper winds stronger than lower, thus giving the impression that the lower trails of precipitation are left somewhat behind.

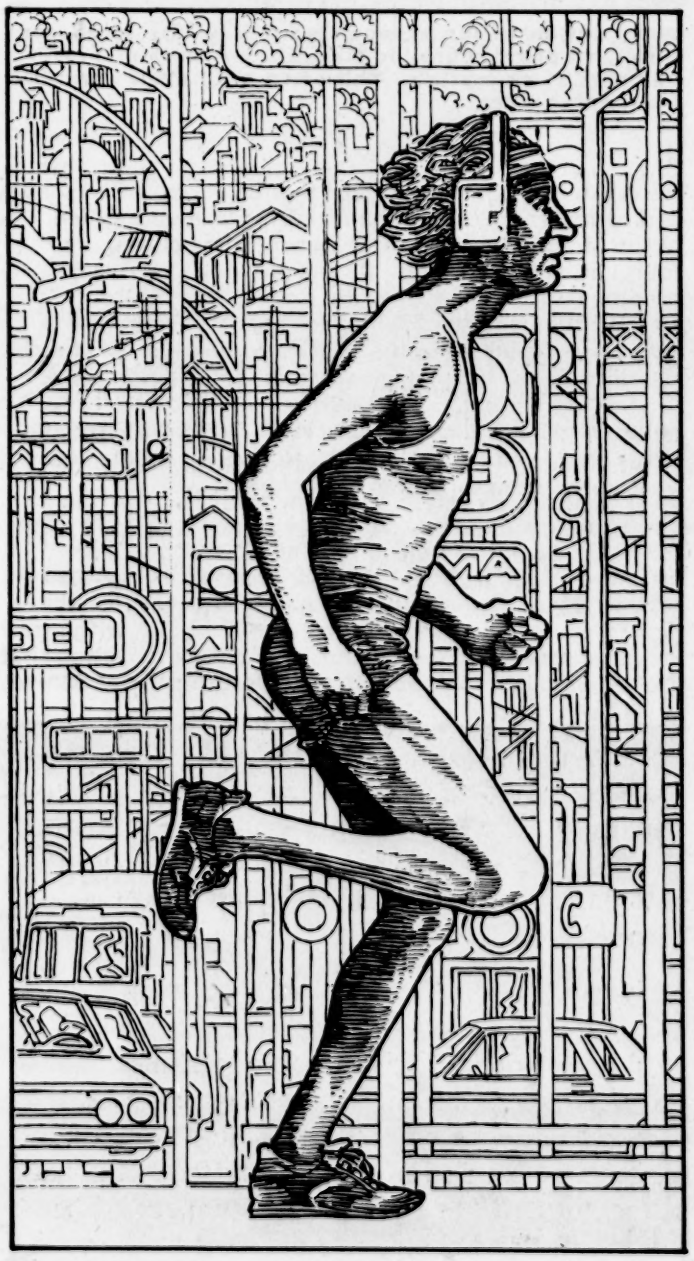


jogger's Reef

by Will Baker

illustrated by Peter Ashwanden

MAN ON THE STREET BEAT YOUR FEET Lady so fine lay it on the line dog on the jog hump a fat hog al-l-ri-i-ght all you fan fan fanatics out there you creepydeep ding dongs run those buns sunup sundown with a one and a two and a three for free now come on Jack don't lay back now come on Jill give us the thrill it's a brandnew clue with a starbound sound so make a guess Jess and take a try guy but don't spook Luke 'cause we'll be back in a rash flash with the cold cash to lay on you the KSTR MYSTERY VOICE right after this direc-to hotline money message from HI-DRIVES . . .



But Kevin Donahue had already made the grade in the shade, had reached the crown of the long, gradual incline that lifted the suburbs from the beach, so when he broke to follow the road that hemmed the dun apron of the foothills he reached up and switched stations. He took the pace down a notch but lengthened his stride as Purcell, effortless and plangent, cascaded into his skull from large lemon-yellow earphones.

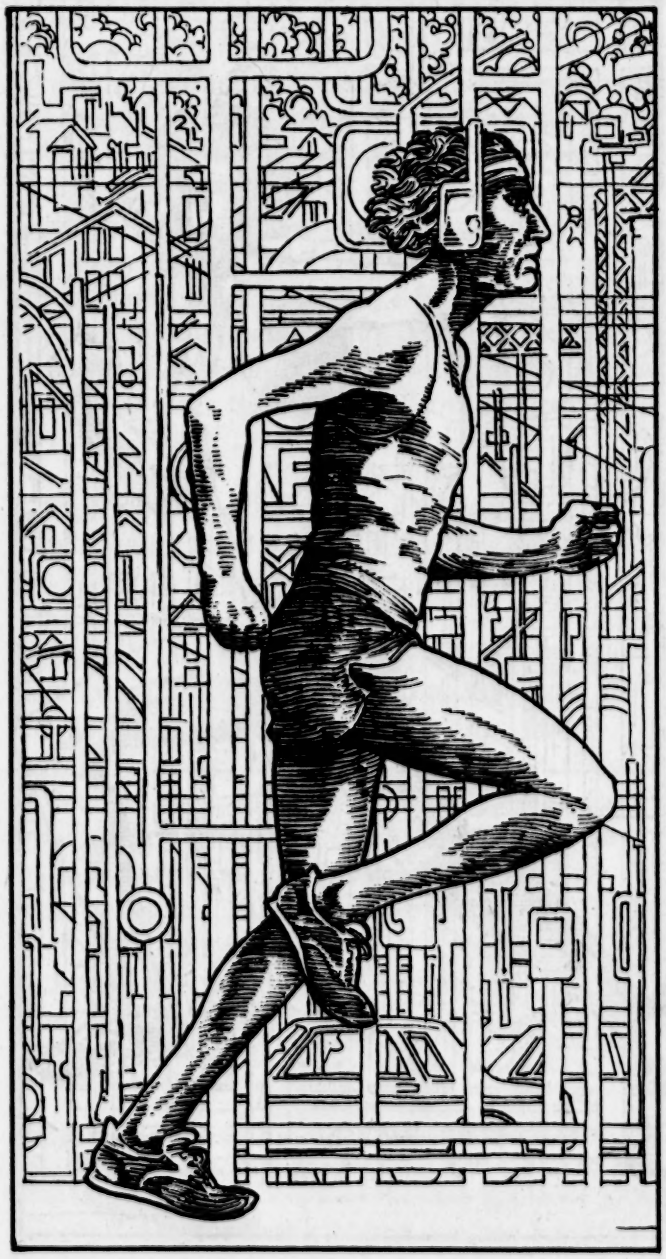
They got better all the time, these guys. Now they could match your basal so closely it felt like you were making the music inside somewhere, and for deadsure your ventricles opened on the beat, and the way your scapula gyrated in its cloak of muscle on a reach could accord exactly with some wild riff of guitar. It wasn't illusion either. The

---

Will Baker verges on being a regular here as well as irregular (especially for an English teacher, even one at the University of California at Davis). He did the scarifying "I Sing of Thee" black satire of South American politics in the Summer '80 CQ and the inventively comic "Left Over in Your Heart" in the Summer '77 CQ. Illustrator Peter Aschwanden is new to our pages but not to readers of the "idiot's guide" Volkswagen books and other publications from John Muir Press, Santa Fe, New Mexico. The concluding graphic, not really by a computer, was found by Kathleen O'Neill; it's a 1969 work called "Lonely Runner" by Thomas Bayrle. *–SB*

best deejays developed a jogger jabber because they had converted, gone the whole shot, toted the togs and threw a true shoe (as they said) right along with the rest of the country. And with a chopper in the air over the city at peak hours, sizing up flow and direction, tracking the main routes where a mass moved like a single organism on a thousand flashing legs, they could pick up its communal rhythm and begin to feed it sounds, extend its range, enhance its appetites.

One glorious blue Sunday in the Boston-New York corridor a madman on a microphone whipped up such a tremendous tide that they broke onto the Expressway by the tens of thousands, sucked out of parks and schoolyards by a run of sizzling Motown, James Brown levitating block after block by the seats of their sweatpants, and then were driven in the surging groundswell of Chicago and Santana, until finally they hummed steady and mighty as Bach. Then for miles down that swooping chute of asphalt he gave them an incredible magic carpet ride: they shoved it on over with Hank Williams; they vaulted a drawbridge via an incandescent Mozart clarinet concerto; with Chuck Berry they did indeed roll the boy over; they rode a down slope on the ferocious cascade of De Falla's fireworks; and then, when the patrol cars had been overturned and some of them literally run over, stamped flat, they coasted on a thin, shimmering raga until the first detachments of National Guard were seen cordoning off an intersection, and then they went to early Stones, hot and dirty, that punched them through the terrified soldiers, helmets clattering and spinning on the concrete in a grim burlesque of soccer.



The finale meant martyrdom for many. A gang of outraged truckers over the state line formed a convoy and chanting their CB redneck litanies they came barreling on, four abreast, at eighty miles an hour. The mad jockey spun his final record: the Berlin Philharmonic in **The Ride of the Valkyries**. The tremendous brass through their headphones hammered the runners into a wedge, a human blade, with the most experienced, the most sinewy, at its point. These were men and women not young, but in prime condition: narrow as lances, smooth of stride, swift as falcons. To the stunned incredulity of the press, gawking through the shuddering Plexiglass of their own helicopters, or hanging like lizards to the guardrails, the runners met the phalanx of Peterbilts – and took them!

The great rectangular grills parted the onslaught into waves brilliant with silky colors, but these waves flowed into greater waves that curled over the cabs of the trucks, battering at the windshields, and the big wheels began to slide and spin in the mulch beneath until finally, unbelievably, they were stopped, yawing in place, roaring like thwarted bulls. By then the new converts were coming on, shapeless coeds shuffling their feet and flapping their elbows, executives still soft in the middle but fiercely dedicated of eye, and as a slow flood finally budges a great driftwood log, they began to rock the eighteen-wheelers aside. Most of the drivers panicked and tried – ironically enough – to run; but out of condition and rendered short-winded by terror they did not get far. Beer bellies jiggling, tar-encrusted lungs whistling, they staggered, dropped and were "dispersed," as a morning paper put it. A few minutes later the deejay was dragged from his glass cage, where he had been crooning obscenities and personal jive over Wagner's horns, and the station went off the air.

As swiftly as it had materialized, the river of bodies forked onto exit ramps and was gone. The dead were gathered up; big, slow machines scrubbed the pavement; a few stragglers were arrested, empty-eyed folk whose legs kept pumping feebly even as they lay handcuffed in the back of the wagon. The nation was "stunned." Then the analysts and commentators went to work. A

majority silent but not inactive. Nonverbal polemic. A crazy combo of the organic and oriental – Seppuku Sprinters. The mob in motion. A new shake of the political dice. All of this blah blah blah missing the point, completely missing the point.

THOUGH CONVINCED that his patients were victims of some large-scale maladjustment, Doctor Emil Frank was, in his sessions with Donahue, himself forced to confront the very fundamental issues. It happened first in the course of tracking a dream through the labyrinth of ancient lusts and bold contemporary desires that formed the bedrock of Kevin's consciousness. It was a dream – a nightmare – of ice.

"Ice?" Doctor Frank had asked, jolted out of his professional listener's somnolence. "Why ice?"

"Why ice." Kevin repeated. "A good question." He glanced at the window of Doctor Frank's office, beyond which the traffic howled distantly.

After a sufficient lapse of time Doctor Frank prompted. "Maybe you should answer it."

Kevin closed his eyes and furrowed his brow. He had learned that this expression gave him more time to think before Frank prompted again.

"That's it." His eyes reopened suddenly and he smiled. "Dante."

"Dante?"

"Yeah. The **Inferno**. Hell. You know."

"Of course. I know the book." Doctor Frank looked a shade impatient. "So?"

"Well, the last inner circle of hell isn't fire, like people think. It's ice. Satan is buried in a block of ice."

"And?"

"That's the connection with the second law of thermodynamics, the law I was trying to beat at Seaborg. A hard one to beat. Ice is ultimate evil."

"Ultimate evil?" Doctor Frank looked momentarily startled. "Come on Kevin." He became shrewd, tough-minded. "Life isn't that simple."

"Isn't it?" Kevin gave him a look that Doctor Frank had come to dread. He had seen it increasingly on the faces of his running clients, a look that was at once blank and full of unfocused intensity, like a mirror that gives back a brighter world. It was the sign of a mood by turns recalcitrant and inattentive, and in any case quite beyond the reach of his usual tools for guiding a train of thought.

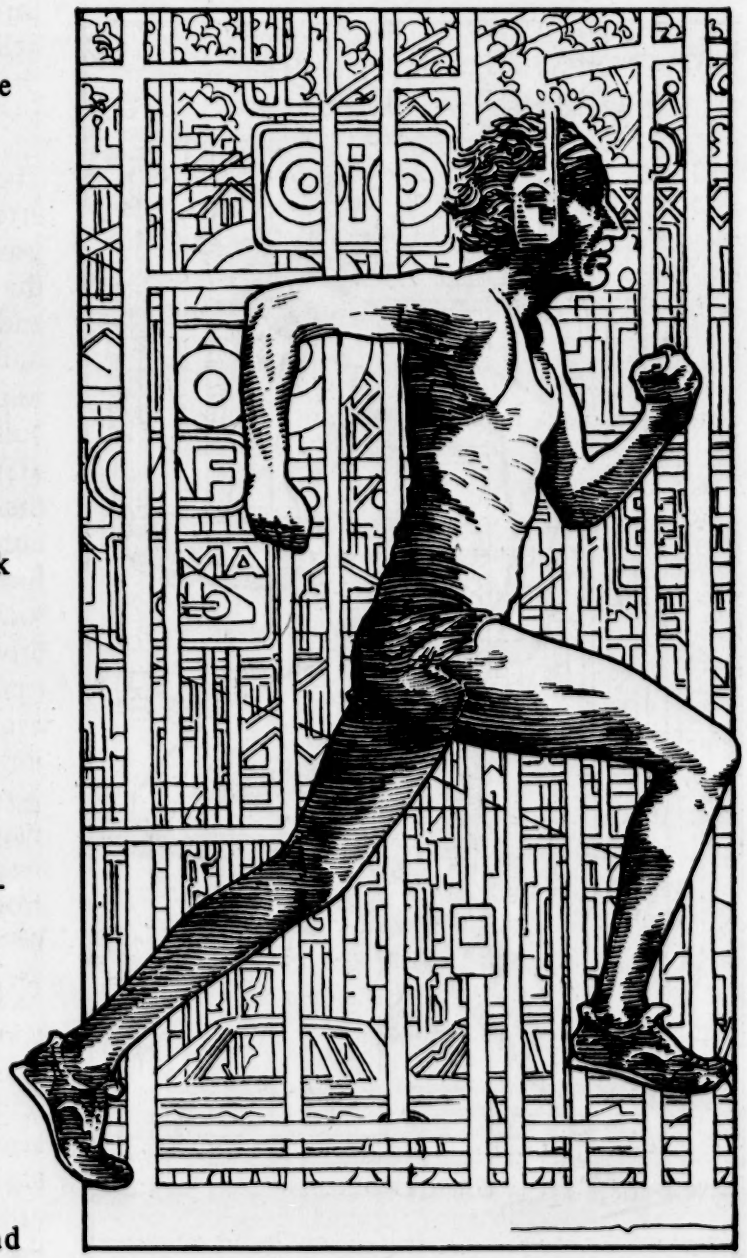
"Let's skip that for the moment. What's this about the second law?"

Kevin's face dimmed. He fumbled momentarily for words. "Well," he said finally, "you know how at freezing point molecules of water get like glue, then line up and go rigid. Then they dump heat, throw energy away. Ice has a minus sign then. It's a heat sucker, a loser, a zero, a –"

"Kevin," Doctor Frank bore down, "what are you saying?"

"I'm saying . . ." Kevin had lost the rapt expression and his knees bounced with nervousness. "Look, it's a metaphor. Ice represents a state, a mood. Like the mood this country has had for decades. 'You've got to give me something to make me go,' it says. 'I won't flow until you feed me heat.' "

Doctor Frank smiled. "That's pretty farfetched."



"What about all the cultures that have worshiped the sun, and fire? They are motion, intense motion, motion beyond thought. The original angels in Zoroastrianism were creatures of swarming fire, so when Satan became king of Hell he took that fire with him. But Dante's right. The real character of Hell is ice. Now in my dream I know everything is freezing, always freezing. Only me and the girl I was telling you about the others in Deepdraw can be saved if we just keep running. You know about dervishes and the Sufi mystics? Well –"

Doctor Frank uttered a faint, quite unprofessional groan. One of the disturbing traits of this new class of clients was their wacky erudition. Scholars who had lain peacefully dormant for years ignited suddenly at the challenge of this new faith. A gang of classical historians and philologists proved that the alleged runner of the original marathon in 490 B.C., a certain Pheidippides, did not race 26 miles from the battleground to the city but covered instead the 140 miles to Sparta. Nor did he gasp out the one-word message "Victory!" and expire. He delivered a considerable speech and the then ran all the way back to Athens.

Even in Doctor Frank's field some of his far-out colleagues were advancing ideas both exciting and disturbing. Notions of the interface between body and spirit were being challenged; accepted principles of aerobics, metabolism and stress were turning spongy; the psyche itself, a few fanatics began to drum, was nothing more and nothing less than eternal motion. By a considerable stretch of the scientific imagination, a few experiments by physiologists suggested that a certain configuration of theta waves, blood pressure and protein utilization could make it possible to move without rest, literally for years.

A conference was held in San Diego, and a Tarahumara Indian was invited as an exhibit. He submitted to tests, then set off at a trot to return to his homeland, skull encrusted with microchip EEG units with transistorized broadcasters. The helicopter monitoring his readouts lost track of him deep in the Sangre de Cristo range, still moving at an easy lope, but already the statistics were impressive: 272 miles of nonstop running, uphill and down, and some of the data indicated the man was doing it in his sleep. This quaint experiment yielded the term Deepdraw, a catchy translation of the Indian's phrase to describe his power: In-us-the-always-flowing-spring-hard-to-reach.

"Doctor Frank?"

Kevin had scooted his chair closer and now leaned toward him with a radiant smile.

"Sorry." Doctor Frank passed one hand quickly over his face, wiping away its laxity and leaving a familiar set of ridges and knots, his expression of detached concern.

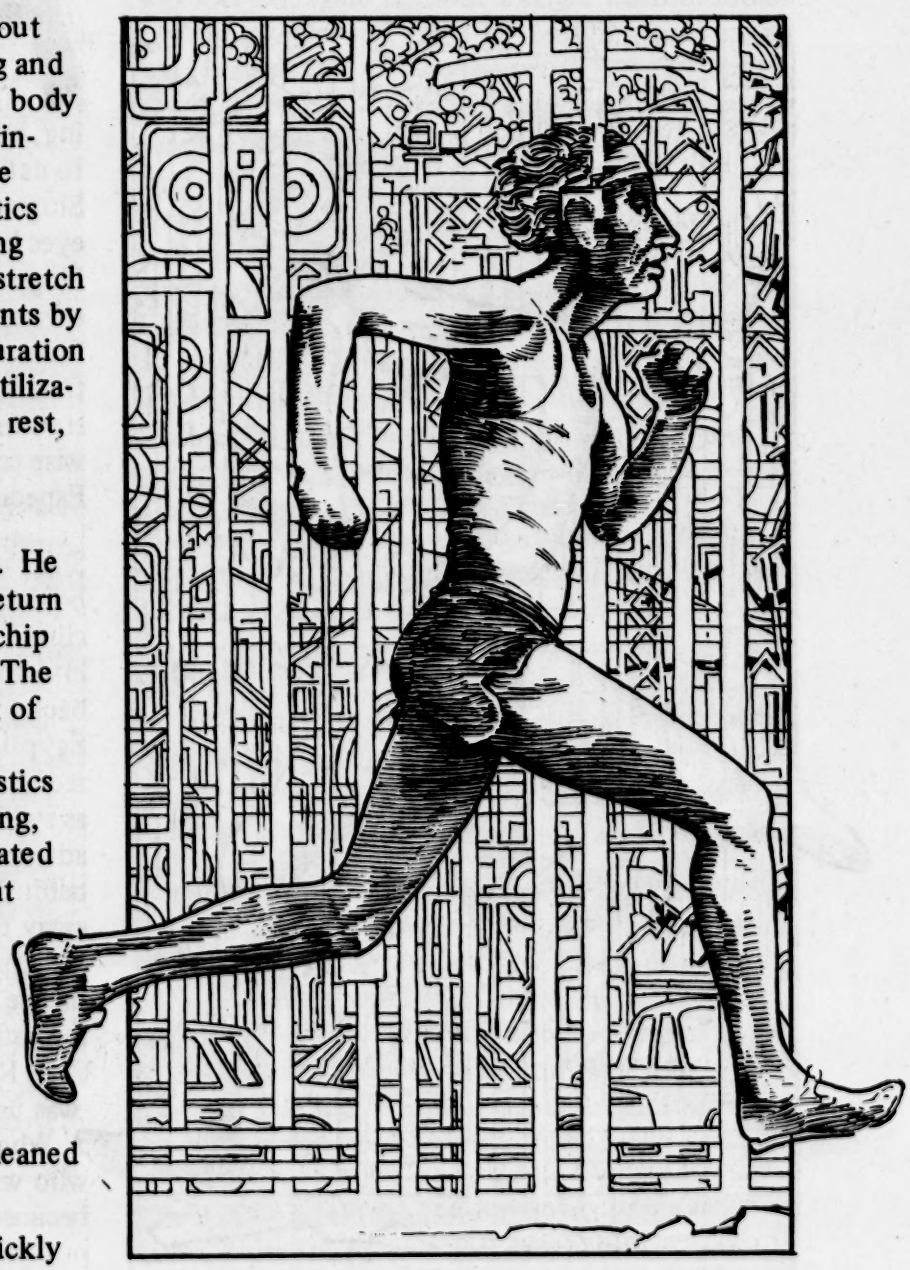
"Let's abandon the smoke screen of the Sufis. We should talk about leaving your wife, quitting Seaborg."

"I left my wife. I quit Seaborg."

Doctor Frank gave Kevin his coolest, most measured stare.

"OK. Sorry. But goddamn it, look how my life was – our lives are – everything is – organized into a bullshit facsimile of motion. The computers tag us and track us; we go up the salary scale, transfer to another company after 35; we use our calculators to figure the odds, sleep with somebody else's wife twice a month. You register your vehicles, stop for red lights, pay parking tickets. Your checkbook, strongbox, retirement plan – it's all ice, Doctor Frank, rigid as hell's ice. Do you hear what I'm saying?"

The question had no trace of plea or even curiosity,



Frank noted. It was part of the fierce rhetoric of the zealot.

"And don't give me that horseshit about all of us in the same boat, the reality principle, take your lumps, and all that. You have to know what it's like when you dump it all, when you move just to be moving, pure wind. In Deepdraw. You . . ."

"Kevin, this situation has gotten serious. Everywhere. There are a lot of people like you. Good middle-class people. Even Congress is worried. There have been cults before, but –"

"Cults. Kooks. Devil stuff. Jonestown. Sure, I know what they say. You don't believe that, do you Doctor?"

"Not yet." Doctor Frank shifted in his chair in spite of himself. "But Reverend Jones started out modestly too. Look at it this way, Kevin: any system which tries to perpetuate itself forever is potentially dangerous. Especially a mental system. What some sociologists are calling the Flywheel Syndrome. Once it's up to speed, you can't stop it without tearing the whole machine apart."

"Exactly." Kevin beamed. "Exactly."

"That's too easy," the Doctor remonstrated. "People are already getting hurt. These runons and runonstrations. Fracases with the police and property owners. What happened that Sunday. A whole new vocabulary even. This Deepdraw and Lopefiends and Slugs and – what is it? Bergs?"

"Nergs. No Energy for Running with Guys. Or Gals."

"Yes. Anyway, the government –"

"Tried to take over the movement. Start obligatory calisthenics and public tracks." Kevin smiled. "They were too late."

"Movement? Come on, Kevin. Bean-sprouters, hypertense lawyers, bored housewives, college students, fat people – that's not a movement."

Kevin grinned again, widely. "Want to bet?"

HE DROPPED BACK from the loose group of a dozen as they neared the ridgeflank where Sepulveda absorbed their quaint, serpentine blacktop. They were all illegal, this workday midmorning, but the authorities had already given up trying to catch bands of less than a hundred, and the Slugs only watched them from doorways or cars, eyes hard with hate but making no moves. The Slugs were scared, now, and with the government's own stern programs, they were harder to distinguish from the Lopefiends. Sometimes they even infiltrated, wearing righton garb and tuning to the stations, snooping for information. So it was not wise to fall too far back, or to cruise with strangers. Especially today.

She came into view with a goodsized group off the boulevard, all with a heavy sweat on from the long climb. Behind her the concrete canyon diminished into the haze of downtown, and against this dull background she raced bright as flame. Her brown Egyptian goddess' face showed no flicker of recognition, but he felt her presence in his system as swiftly and certainly as a mainline syringe of adrenalin. He settled in on one side and slightly behind her, and in a few minutes they had pulled away from the rest. His blood began to sing. The pavement flowed under them like a black river. In one motion they raised a hand and flipped to the same station, where a new group – it was Cold Rape, he thought, or perhaps The Stens – was unchaining something vast and powerful.

When he ran with her he turned to the groups who were already breaking up in fire like meteors, because he wanted her to get absolutely everything out of him. And she did. She always did.

It had been against her stride, in fact, that he had discovered Deepdraw, the well of energy that held them all together and would bring them at last to victory. That had also been the end of his marriage, and the end of his career at Seaborg Dynamics, and the end of golf and tennis and bowling and pointless backpacking and patio barbeques and mint mouthwash and a lot of other things too. He bared his teeth in a grin, as if he were eating the wind.

Gimme gimme gimme all the stuff that you got!
Spread 'em for me sugar 'cause I'm red red hot!

Underneath the lyrics in a counterpoint of pure tempered steel he could feel her will challenging him, lifting him, blowing him on like a puff of seed in a gale. Sometimes he thought she was talking to him through the earphones – a phenomenon many had remarked as they approached DD. *O-o-o-h white boy*, she would say to him as they tipped over the hill and down toward Pasadena, *you want to see your mama run?* Or on his bad days, when the air seemed to resist him and the Earth jolted his strength out of him and he lurched crazily behind, further and further behind, she would fall off her own pace a little, until they were nearly abreast, and then stretch her incredible antelope legs, driving smoothly away, and whisper into his skull *Come on baby come on you like this honey come and get it come on sassafras come on clubfoot come on candyass motherboogaloo COME AW-W-W-W-N!*

And come he did. Nearly out of his mind, the world darkening with the roar of blood in his chest, running as if he were on a horizontal stairway, his gaze tranced tight to the coils of power that were her buttocks, he would somehow recover the pace and begin to hold his own. Something hot and liquid, beyond joy and desire, bore him in its flood. She would keep him there, at the end of a long tunnel, his heart beating quite literally for and through her, until she turned abruptly up the pathway to her front door. There she collapsed all at once like a puppet whose strings have been cut, yet still with a shambling grace, and he would manage to lift his hand in a farewell salute as he staggered by.

Except for this small wave, they had never acknowledged their relationship. But it was there, resplendent as sunlight. He was sure his thoughts were clear and present in her mind as well – his bursts of love, the silly metaphors – shadow and wind – as well as his profane and filthy raging. She knew his mind, his feelings, and she forgave him. Once one reached Deepdraw with others, everything was forgiven.

It had first happened to them in a marathon three years ago, before the first troubles. As usual, there was a sexual and competitive tinge at the beginning. She ran at once like a huntress and deer, alternately curving her motion into his like a sweet shadow, then taunting him with flashes of speed. He had at that time been a "dog," a determined, steady pacer with good stamina on grades and an outside chance to place on days of wet, shifty ground. She ridiculed his type without a word, a side glance, a gesture; simply her lithe young body stretching and contracting rhythmically was commentary and expostulation. She was – insofar as slang categories fit her – a Hawkfucker. She ran flat and smooth, soaring, but with a just-concealed voracity and drive that were breathtaking. Like all Hawkfuckers she sometimes came suddenly unstrung, lost muscle tone and respiratory control in midstride, but on a good day she would win her class with an ease that bordered on contempt.

At the end of the first four kilometers he was in love with her, and in a fury to match her casual dalliance with a new aggressiveness of his own. But then the Japanese man edged up on the far side of her, and a new dimension of being yawned around them. An extraordinary triad of energies was formed, again without a single word or look passing between them. If he was the whole fanatical idealism of his race, the white-hot consuming fire of aspiration – in its lowest form the greedy conquistador and in its highest the moaning martyr at the stake – and if she was the raw power and grace of instinct, the beauty of a thoughtless predator, the oriental absorbed both positions and resolved their contradictions into something that was more powerful than either by itself. The newcomer did not run. He simply appeared at different locations in sequence. Or, put another way, he was continually vanishing and continually materializing, never all there and never all gone. His presence changed subtly what had developed between Kevin and the woman. The fluid fire that had raged there was submerged into a vaster, all-pervasive energy that moved the three of them as one. The pace was as unvarying as a sidereal clock, so regular that Kevin had a peculiar sensation of immobility and weightlessness. He imagined that it was the sensation travellers might someday experience as they reached the threshhold of the speed of light.

They did not win or even place in the marathon, but the union endured past the finish line. Kevin knew, with a wild bound of his heart, that they would keep on running, effortlessly, for as long as they wished; they were in Deepdraw. And at the instant of his recognition he stumbled; the strength fled from his limbs and air flamed hot in his lungs. The Japanese did not flinch, and Kevin pitted himself desperately against his own mind, like a crew working under lights to sandbag a levee, trying to recover the connection to a

bottomless sea of energy, a connection that would evaporate at the first sign of his consciousness of it. The force came through the man beside him again and moved against his back like a great wind. He floated for some moments, the three of them once more as fixed as stars in their eternal migrations, and then the levee weakened and he wobbled. The woman gathered herself and flattened her trajectory, pulling away as if from a bad smell. A tiny shred of regret or pettishness or concern connected with Kevin worried at her like a hook, and in another stride or two she also lost the pace. The connection had snapped for good, and as Kevin windmilled to a stop, sagging against a roadside tree, he realized that they were not three, but something approaching three hundred, their breathing like a vast crew of carpenters working with handsaws in soft wood, all of them stunned with the realization that they had overrun the race by at least two kilometers, all of them watching the oriental man diminishing to the horizon, the black cap of his hair becoming finally a period, a point, a mathematical hypothesis, one of the countless swarm that moves just beyond the verge of visibility.

The next day he told a white-faced, incredulous Sarah that he was moving out. She threw a plastic bottle half full of fresh water, used to spray her ferns, not at him but clattering on the floor between them. He picked it up and handed it to her, but could think of nothing to say.

Two days after that he quit his job. His superior, only three years older than Kevin, looked at him with an aroused curiosity that only gradually darkened into contempt. "Don't be a kook, Kevin," he said. "We all want to stay sharp but these people are loony. Take a week off and think it over." Kevin only smiled and left, for good.

DOCTOR FRANK entered a turbulent time of mingled anxiety and exhilaration. He found himself flirting – perhaps more, perhaps having an affair with – the new "movement." He told himself at first it was a professional inquiry. He was after all an eclectic; a posture necessary, he felt, in his profession, with a world so fragmented and paradoxical. He knew his Freud, Jung, Adler and Reich, but he could (and did) refer certain patients to an acupuncturist, others to a yoga master, and a few of the wealthier ones to secluded thermal baths. When the yellow press prematurely labelled it all a "Cardiac Cult," a "Deathdrive," he maintained an open mind. And he saw soon enough that a few of his clients, like Kevin, registered a definite move to the manic when they made a full commitment to seek eternal Deepdraw.

At a certain point, he felt these patients struggling to express psychic sensations too subtle and too vast for their vocabularies. They would look at him with radiant, confused faces and shrug hopelessly. "You've got to do it," they told him, "to dig it."

So finally Doctor Frank did it. And he dug it. Tennis had kept his flab under control for years, but running the new way did something – he finally had to admit – to his whole attitude. During the first weeks of his regime he wondered ruefully, with a distant twinge of terror, whether he would survive. Neardeath seemed to be the price of rebirth. Then one morning while "working on the push," striving to go beyond the point at which every cell of his body informed him he must collapse, he felt it. It was like a sudden, partial repeal of gravity, a lightening in the bone marrow, and he went on and on, lap after lap, until he drew up at last simply to contemplate the miracle of his own flesh.

Soon almost all Doctor Frank's patients were

dogs, swanbutts, windmills, hawkfuckers, pelicans, sicklefeet. And soon they were not only his patients but – all professional ethics to the contrary – his friends. He discovered a radical fringe in his field, others who had integrated biofeedback, holistic energetics and Zen into their practice. A few had even given up the couch in the office, and did their work on the track and in the road. Words counted for less and less, and for the first time, at the age of 41, Doctor Frank knew what it was to belong to a spiritual brotherhood.

A tacit brotherhood. One day a patient mentioned that a few of the select had managed at least to drowse during a three-day run. Together they recalled the Tarahumara who had broadcast a like state from the Sonora desert. Doctor Frank wondered about REMs, Rapid Eye Movements, and the patient laughed, giving Doctor Frank a sly look.

"You know about Mr. Rem, then?"

"Who?"

"Mr. Rem. It's really MRRM."

"For?"

"Mass Run for the Rebirth of Man."

"No. Tell me."

"Can't. Don't have to, Doctor. You will know when the time comes." The patient looked at him with deep affection, and Doctor Frank felt his questions, some of them uneasy, evaporate.

As he was introduced to the chatter, code phrases, and mannerisms, Doctor Frank grew used to spotting Lopefiends in unexpected places: under business suits and mechanic's overalls, beneath stetsons and cloches, in high and low places. With a wink or a word, fellowship could be acknowledged. Even a small gesture was sometimes enough. It did not register with him – although he had been warned – that there were disguises within disguises, that there were double agents. But one afternoon after several sessions with a new patient, a quiet balding young man with intense eyes, Doctor Frank found himself staring at a small leather wallet cocked open in the man's hand, the ornate seal and photograph aimed at him like the rays from a mirror.

"Surprised?" The young man allowed himself a slight smile and snapped the wallet shut.

"Frankly, yes." The doctor felt suddenly cold and hollow. "What's this all about?"

"Let's not flirt, Doctor. You and I know what's going on. Would you please disconnect your intercom?"

After a moment's pause, Doctor Frank flicked the switch.

"I'm very flattered. I must be more dangerous than I ever imagined."

"I asked you not to play it coy, Doctor. All of our sessions have been taped. I don't think malpractice would be hard to establish. Or maybe conspiracy." The man spoke quietly, but all at once Doctor Frank saw him clearly as he was. The body inside the conservative suit was tense with compact hate; the eyes had a black gleam of madness to match the mirror finish on his oxfords; underneath the spicy cologne he used there was a rarified odor, perhaps gunmetal. "You'd better talk."

"Talk?"

"Yes, Doctor. Talk. That's all. You can do your country and yourself a pretty big favor."

"How's that?"

"You think it's a good idea to stomp little children to death, Doctor Frank? Push women into the ocean and drown them? Innocent people?" The man leaned suddenly forward and the Doctor felt as if a weapon were leveled at him.

"That isn't really a question," he said quietly.

"No. But you ought to consider what your patients – your buddies – are up to. What we have here, Mister Doctor, is a new kind of narcotic. The most dangerous, the most destructive drug in the history of society."

The man paused for dramatic effect, his eyes burning into Frank's. "Of course you think that's exaggerated. You think these are people who just want a little exercise and a little time off, who think it's tricky to have their little secret club and get off on a little after hours trot with some chick from across town. Sounds harmless."

The man's lips wrenched abruptly in an expression of disgust. "Fools. I'll tell you something. We're talking about nothing less than controlling the energy supply of the Free World. The index of productivity in this country has been falling since that famous Sunday. Disabilities everywhere – fallen arches, compressed spines, respiratory problems – and a lot of people just vanish, leave their jobs, wives, responsibilities. They won't stick to public parks and tracks. They won't follow recommended schedules for weight and age classifications. They want to be 'free' they say. Every nut in the country has gravitated to this crap. The dopers, the radicals, these guru creeps, women's libbers – Jesus!" The man's bald spot now had a thin sheen of moisture and his mouth writhed around his words. "People like yourself. Professionals. Even some politicians. Did you ever bother to think, Mister Doctor, what was behind all this?"

Doctor Frank expected this moment. The peroration. The revelation. But always before he had been only a witness, sometimes troubled, sometimes amused. The Red Menaçe was a cartoon cliché, an occasional chimera in the childhood traumas of his patients. Now he was drawn, fascinated, into the vortex of paranoia and potential violence that was the heart of political life in his country. He could bear with him only a single, delicate wand of truth.

"Yes I have."

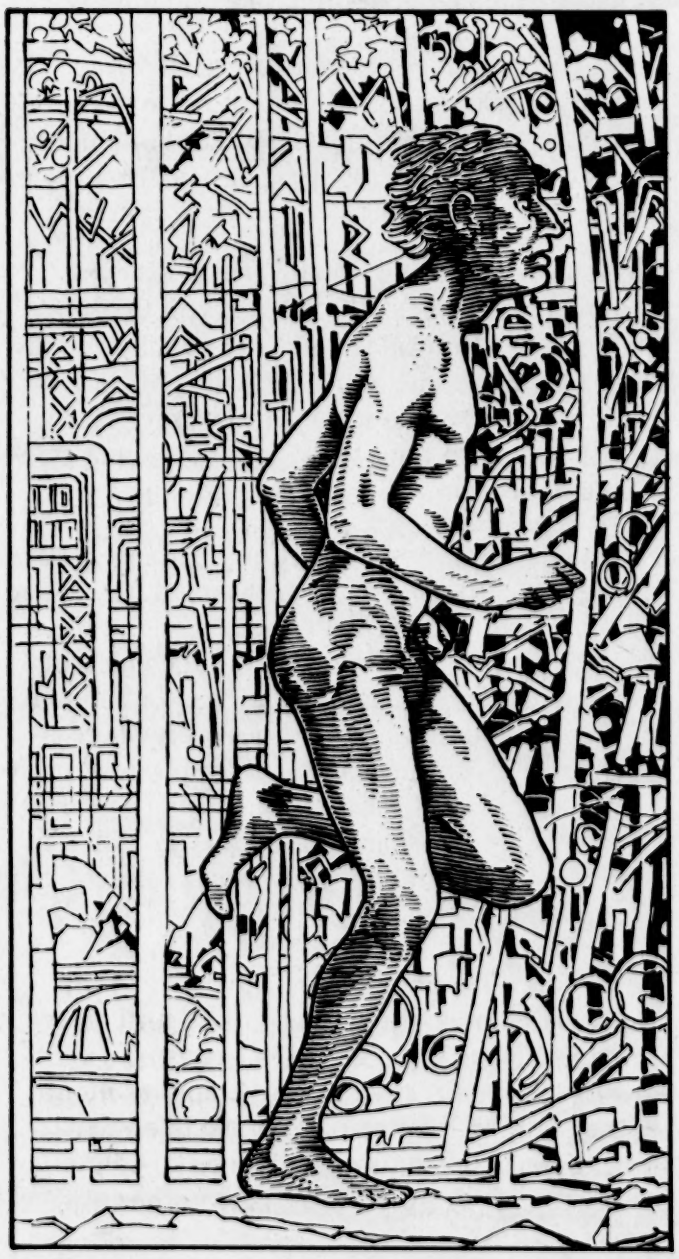
"And?"

Doctor Frank actually laughed. A modest, easy laugh. "Nothing. There's nothing behind us."

He waited until the man's face had congealed, a little vertical pond freezing over, white and blank.

"Also," he added, "nothing in front of us."

"You don't see do you Doctor?" The man shook his head slowly and his mouth twisted again. "You don't see that these people will stop at nothing!"



WHERE MAIN BOULEVARDS terminated at the beach, opening out into parking lots, elevated malls, and marinas, they built sandbag bunkers. On the beach proper they established landing pads for the choppers, in case the crowd blocked all road access to the waterfront. The tanks were formed into a loose skirmish ring two blocks inland. In the bunkers ammunition boxes were stacked and the gun crews sat on them smoking, telling jogger jokes in a rhythm both desultory and nervous.

"Hey Artie, what's the difference between a buncha women joggers and a Pygmy tribe?"

"Yeah, what."

"A Pygmy tribe is a cunning bunch of runts."

"No shit."

"Artie don't get it. He don't know anything that runs except the end of his dick."

"Fuck you."

From a field tent beside the cinderblock restrooms a sergeant came toward them. He was fat; his shirt and trousers were tight as sails over his bulges, and damp with perspiration where the fabric gathered and creased. As he approached he blew irritable puffs of air upward past the small potato of his nose.

"Sarge," one of the men said and moved to a leaning posture.

"Sonsabitches." The sergeant glared abstractly around the ring of men. "This ain't a secured smoking area. Alman, you know better'n this. Sonsabitches."

"What's the matter Sarge? They comin'?"

"Course the cocksuckers are comin'. Sonsabitches know that and they won't let us use no recoilless."

"No recoilless?" Several of the men shook their heads at this tragedy.

"Fuck."

"Shit."

"How come?"

"Account of – now hear this – account of the property damage. Store windows, like that. Sonsabitches."

Some men had moved aside to make room and the sergeant sat heavily on the ammunition boxes. He removed his helmet and stared into its dark pit.

"Well," said the man who was leaning, "they got a point. Fifty-fives would tear holy shit out of them drugstores."

The sergeant looked up. "You are a dumb fuckhead, Alman."

"You figure we need fifty-fives?" another man asked, placating.

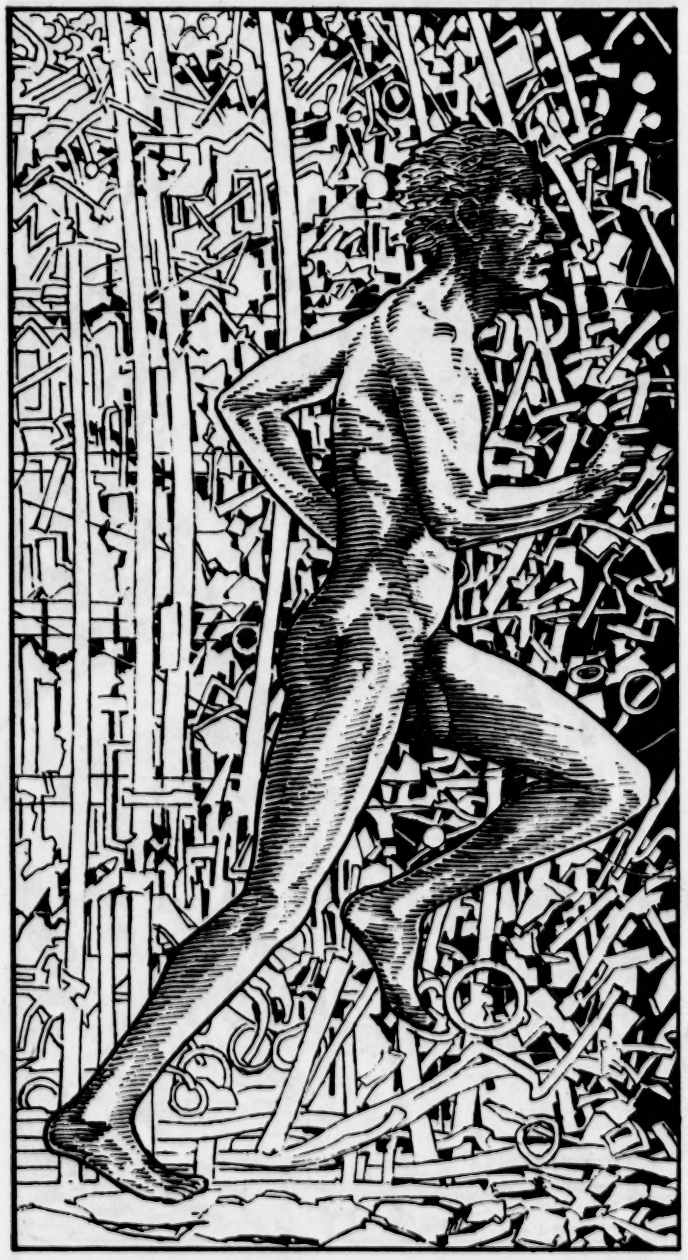
"Maybe, maybe not." The sergeant sighed and spat. "Ought to be field commander's option. There's gonna be a shitload of them bastards."

"Yeah." Alman giggled. "All them college pussies in little short pants."

"You just keep your finger on the trigger, frigger, and out of your ass. Some of them pussies got a .25 automatic hid in their sweatshirt, and they can hit a target on a dead run."

There was an interlude of silence while the men considered this angle. Very far away there was a short clattering burst, an automatic weapon imitating a squirrel. Then a fly droned in and out of the bunker.

"Fuck me." A young black man was gazing meditatively over the sandbags and down the long, empty boulevard that undulated and shivered in the heat. A lone tank squatted at an intersection like a huge, abandoned toy. "They crazy."



"Worse," another man said. "Fuckin' insane."

"Why the hell they do it." Alman shook his head.

"Thing that gets me," said a young man suddenly, his face intent, "is that it's our own people. Americans."

The others regarded him.

"They ain't Americans. They're loonies," someone said and the men laughed.

"It's a bitch," someone else said.

"What the fuck you gonna do, let the whole fuckin' country commit suicide? Let it go?" The sergeant looked hard at the young man. Behind him a couple of the soldiers glanced at each other, one nodding imperceptibly.

"I guess not." The youth's face went slack again.

"Got to be stopped. Right here." The sergeant again inserted his head in the pit of his helmet. "They run their last run right here. They ain't takin' this country." He heaved himself to his feet and shook each tightly sheathed leg in turn. When he had left the bunker and was on his way to the field tent, one of the men called after him.

"How many do they say are comin', Sarge?"

The sergeant did not turn, but blew the answer up past his nose into the clear sky overhead. "A shitload," he said. "A shitload."

WHILE THE LEGITIMATE stations were still operating they emptied the city, running east to pick up the advance guard, to adjust their pace, to begin working into Deepdraw. The deejays pumped the beat into them with manic glee, and with the mere mention of a few street names they began packing up the expressways leading out of certain suburbs. But there were no slowdowns or gridlocks, only an occasional eddy, a shifting whirlpool that soon dissolved into the even flow. With all automobiles withdrawn into garages or dead on the street, the air was pure as crystal, a shimmering translucence that evoked apparitions on the skyline and in the deep notches between downtown buildings.

The sea of bobbing headphones took on a certain communal dynamic, a synchronicity that was subtle but pervasive. Dense in independently generated radiomagnetic waves, the atmosphere, by some mysterious convergence, became harmonic. They felt it as a throbbing far beneath the skim of music, beneath even the thunder of

their own hearts, beneath the pavement; a pulse from the heart of earth itself. Some ran with Vivaldi, some with Shostakovich, some with the Grateful Dead. These configurations of sound, that might seem so varied in a more open field, began now to nest into each other, into what mathematicians call a compact neighborhood; they began to implode as the mirror-image, in time, of the profuse asymmetries of rococo in space. The deejays sensed it too – many had arranged with sympathetic engineers to be locked into their soundproofed cubicles. There they hunched over record after record, sweating, crooning, orgasmic – writhing as a power beyond the detection of vumeters rushed back through their microphones and turned their little web of nerves into an incandescent matrix.

Hey bobba-rebop-debop-bop-doo you hawkwalkers and dogfoggers let's see the goose cut loose you wanna know how the clan ran alright babyblue synchadoo here's the race trace by El Dorado to Exeter down the tube rube over Sunset and blow it on down the line to La Cienega there's a new dawn honeybaby just for you so take it on the reach pick em up put em down lay it in lay it on take a break now Jake because we're gonna ride all the way in with Mister Big Tee for Terrific Tchaikovsky so dig on the big boom babyblue bobaree-Bop-Boo!

Kevin and the Egyptian goddess were flankers again for the Japanese man, whose metronomic stride had spread to other legions behind them, and around and through the torrent of sound raging through his cranium Kevin felt he could hear and sometimes even see fragments from the inner life of those who made up the horde. They were the sounds and images of flight, or nostalgic reminiscences of childhood's liberty: the roar of quail bursting from cover, the long curve of an empty beach, the echoing canyon of a city street at dawn.

When they spotted the first scattered line of outriders, the strata of memory grew denser. These were the far, far edge of the racing tide, drawn down to bone and a thin sheath of muscle. Over the weeks their features and limbs had weathered to a shade of old mahogany and their eyes had washed clear and clean as the sky above. Many had whispered to spouses and slipped out the door in Philadelphia or Baltimore or Jersey, leaving sunny kitchens where coffee dripped and eggs blubbered softly in pan grease, out for a little run before the day began in earnest, and now it was as if by simply extending the little run they had suspended in time the kitchen, the expectant spouse, the very dawn, and now this memory of an eternal morning blended into the afterimages of the welcomers, Californians, many of whom had in fact only minutes before slammed a screen door with a cheery see-you-later and sprinted away on dew-drenched sidewalks.

Thus they were unified, and the outriders, so near their goal, found themselves buoyed to an unexpected level of joy. Their tanktops and shorts were faded by harsh sun; the shoes of many were little more than rags; a few had gone blind with road glare, and were kept in place by sympathetic flankers. No matter, the ecstasy of their effort transcended time and pain equally, and a beatific expression, not a smile but a pure, passionate emptiness, spread like a shock wave through the ranks. Kevin was not surprised to find that the Japanese man's stride was exactly that of the new arrivals from across the country, and they had only to fall together to become a single, beating heart.

WE'D LIKE TO KNOW, Doctor, what if anything might be used to delay these people. In the way of a psychological-type means of persuasion. You've worked with them."

The General glanced around the table, his eyes holding longest on the young man who had brought Doctor Frank to the windowless cell underground.

Frank was feeling weightless, so far above his fear now that he seemed to be on the verge of some cheerful, childlike discovery. But he knew better than to smile. Evans, as the others here called his former client, had betrayed enough to warn him away from any hint of levity. The Joint Chiefs had decreed the situation mortally severe. The President had authorized the dispersal of the mob with "all necessary force."

Frank agreed with them actually on the seriousness of the situation. It was true that public order was disintegrating. Nearly half the people in the country were out on the road, streaming westward into the sunset day after day. Many had fallen into paroxysms of exhaustion, unable to reach the threshhold of Deepdraw, and the sanitary crews could not clear them away fast enough. Typhoid had broken out in some areas, and the survivors, in mad terror, had simply run with the flow.

"I think to approach the question of delay, you have to understand the problem," Doctor Frank said. He was stalling, and the General knew it.

"So give us the problem Doctor," he said with a touch of the sarcasm usually reserved for children.

Frank blinked rapidly and one foot squirmed inside its shoe. "It's very difficult –"

"Save it," Evans cut him off. "Just tell them what you told me."

"Insanity," Doctor Frank whispered. "A form of group insanity. I thought it was harmless. The American, you see, is conditioned to achieve, to exert, to surpass. He never therefore can relax, except when he is extending himself. Or herself. The rat race. This goal-oriented drive is fueled by the id, powerful destructive and erotic forces, and governed by an ego that enforces rules and responsibilities by invoking guilt and the reality principle. But –"

"Come on, Doctor. Give this thing to us in basic terms. We're in a crisis situation." The General scowled around the ring of faces. "This is a real ass-kicker." Other men nodded stiffly.

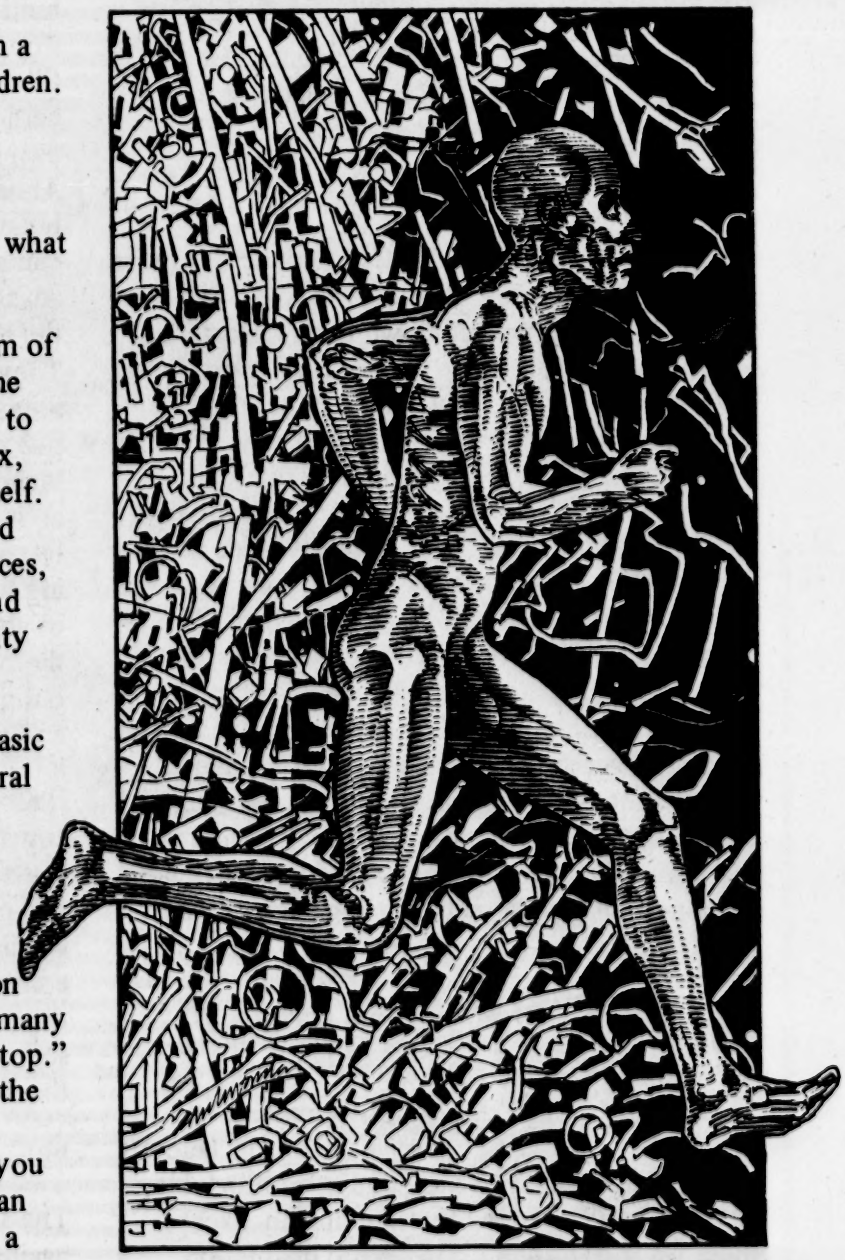
"Americans are freezing to death," Doctor Frank went on, now animated. "They are always caught in the rigid patterns of direction and evaluation. Gold stars. Blood tests. So many social force-lines the molecules slow up and stop." Both feet were now clawing inside his shoes, the laces like hot wires crossing over his insteps. "Only when exertion is for its own sake are you free. Running you are not where you were, an ice-man, and you're not going anywhere like a bullet, you're nowhere, like the air. Respiration, not aspiration."

"Evans," the General's words were like bricks stacked swiftly on the table, "We have no time for this crap. Get him out of here."

"Frank." The young man in the suit leaned over the table and hissed at him. "Don't fuck with us. You're out of time. Tell them what you told me about public order and mass neurotics."

"Neurosis," Doctor Frank murmured. His oxfords toed in, splayed out, goofing sideways out from under him. He thought he felt a faint, oh so faint vibration, rhythmic as millions and millions of raindrops falling, reaching him through the layers of concrete and steel overhead. "Drive. The ego can't mediate properly anymore. Brain starts to melt like a cake of ice." He giggled. "Nice. Run it out, lout. Get free McPhee. Freud never thought of that, this space between the ego and id, but somebody did."

"Jesus Christ!" The General half rose, his face dark with blood.



Frank's body arched off the chair and air was sucked into his lungs with the sound of a sword drawn from its scabbard. The invisible pattering rhythm stirred him everywhere, as a pond crepitates in a downpour. His circumflexing feet took him away from the chair, bopping across the room past the desk where now several men poised, as if arising from stool, their medallions hanging free from bright ribbons. At the door a pair of men in identical combat fatigues, one black and one white, stared at him as he woggled by. In the corridor his feet trimmed as to a magnet, his knees lifted and his elbows cranked like the driving rods of a locomotive. The door at the far end of the corridor began to accelerate toward him.

The General roared inside the windowless room. Evans' frozen white face appeared in the doorway.

"Take him," he said sharply to the two men. "Take him out."

Like a dance duo they stepped apart and snapped up the chunks of blue steel slung from the shoulder and all at once the corridor was aclang with noise.

Before Doctor Frank the corridor darkened and tilted up suddenly and steeply, and his stride became longer, looser, easier, immense. He ran straight up without effort into a black, storm-tossed night.

TWICE THEY CIRCLED the city's heart, like an eddy of dry leaves in a doorway, and then poured down the main arteries toward the beach: Harbor Boulevard, Long Beach Freeway, Newport Avenue; they were welling in from the San Gabriel Parkway, through West Covina on the San Bernardino, a broad steady current out of the north on the San Diego, a bronze rivulet as well from the Riverside Expressway. In the dense suburbs – Santa Ana, Anaheim, Whittier, Temple City, Glendale, Burbank, Hollywood – they met freshets out of the sidestreets and the streams ran solid. Ashcans, parking meters, remaining automobiles were swept up and tumbled over and over before they vanished beneath the heaving surface. Helicopters veered above, but their loudspeakers were drowned out in the avalanche of sound below, and they seemed merely inquisitive insects, darting here and there, then away.

One of Kevin's last thoughts (or what he had before classified as thought, individual thought) was about the miraculous way in which he was always free in the space of his movement, and yet there was no distance between them. His beloved was as near as his own skin, and as comfortable; he felt actually inside the oriental man, except there was no inside or outside, no distinction between them. The man had actually disappeared, become only a pulse that moved them all in an intricate, perfect abandon, like a stream dashing down a mountain, and their rejoicing in this headlong plunge first transfigured them, each one flaring like a spark from a fire, and then consumed them to form a raging sea of magma, an explosion of free energy, a vast primary fission before consciousness, brought on by total ecstasy at the atomic level.

In the bunkers they grew grimy and weary, deafened by the constant hammer of the guns. They slammed clip after clip into place until the barrels, dull red, finally choked. Like men in a dream they fumbled with the replacement barrels, dropped them, sat in a stupor as the tide flowed around them.

"Holy Jaywalking Christ," Alman whispered, though he could not hear himself even if he shouted.

They played the tracers in and through the mass, creating temporary whorls and bulges in the flow, but hours ago they had stopped firing straight ahead. Already a small hill of bodies had been built there, and they were afraid to fire up the slope lest the corpses tumble into their bunker and fill it. The wall of runners was at times almost held in equilibrium, one rank after another folding over the swathing crossfire. But at other times Alman had the hair-raising sensation that the bullets diminished as they left the mouth of the gun and were gone before they reached the advancing horde. This was particularly true when the long distance runners appeared, the Easterners. They were mere racks of bones, wraithlike, and seemed to float toward him. He poured a whole clip directly into one of them, a man whose eyes, bland sea-gray, seemed larger than anything else about him, and the man did not flinch but passed by, not six feet from Alman, his ragged feet seeming scarcely to brush the Earth. These legions of ghosts drifted swiftly across the beach behind the bunkers and thrashed into the surf. The water did not seem to slow them down; they entered it and were swallowed up like fish.

He looked around while cracking out an empty clip and saw that a black soldier in the next bunker was squatting beside his machine gun, now quiet and pointing skyward, smoking a cigarette. The soldier looked out over the rushing mass, so many colors swarming that it was like the chameleon dots that form behind eyelids shut against the summer sun. He watched idly as a man looks out the window of a moving train.

"Sanders!"

The sergeant was screaming at a youth huddled against the sandbags. The youth was gripping his

hands tightly between his legs. He was staring at something deep, very deep in himself. "Shit," he said and Alman was surprised because he could hear quite clearly. "Shit oh shit oh shit."

The sergeant hit the youth on the side of the head again, but weakly, and stood up. He saw the soldier idle and smoking in the other bunker, and his heavy body seemed to inflate before he screamed again.

"Henderson! Fire, fucking Jesus fire! HENDERSON!"

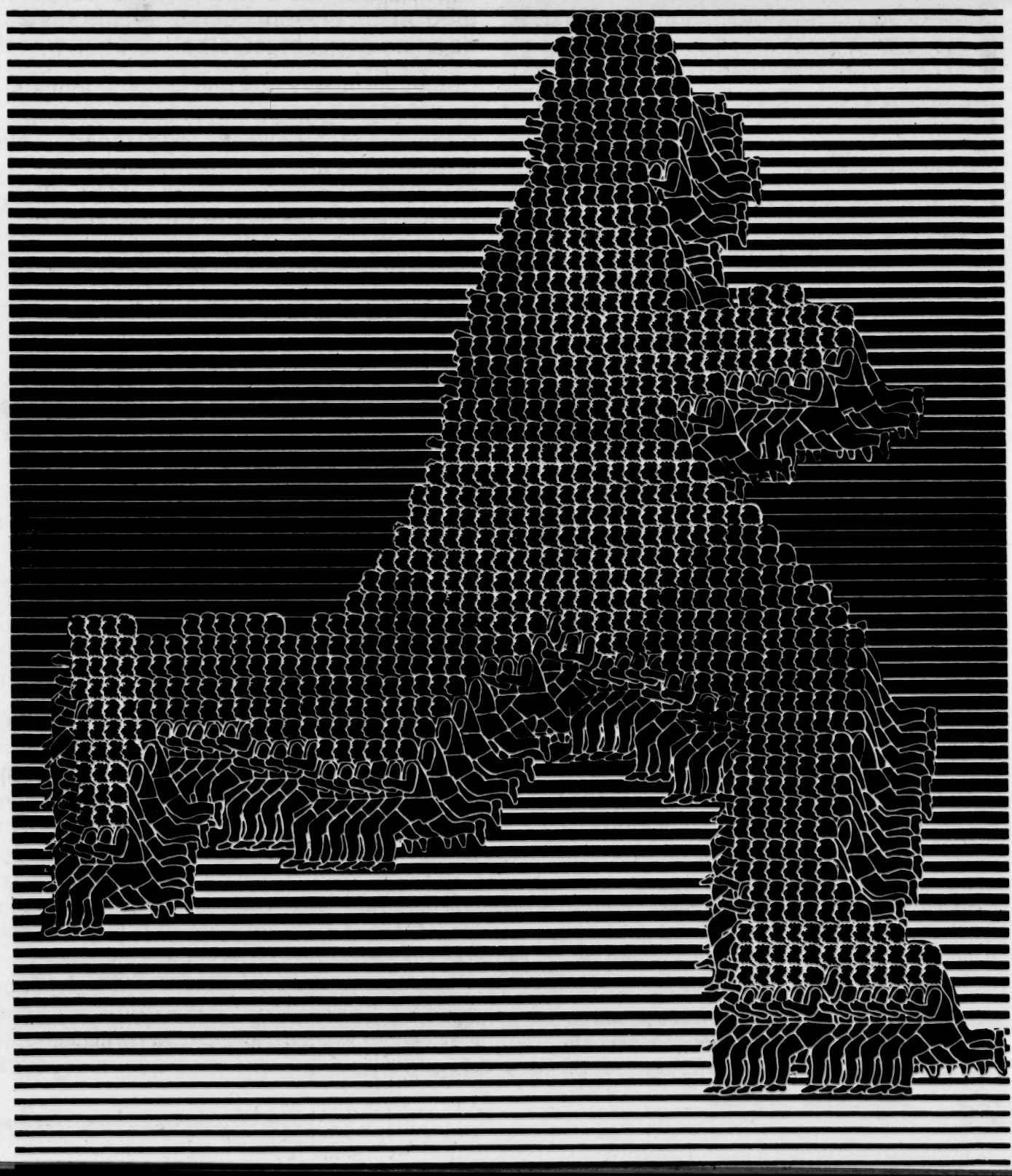
The black soldier glanced at them.

"Fire, goddam you! Fire your weapon!"

Henderson plugged the cigarette back into his mouth and dusted off his pants. He stepped behind the gun, jacked the carriage open and shut, and then swung the barrel around until it covered Alman and the sergeant. Alman, on his way to the ground, saw the grin and the orange blossom.

In the water they kept reaching, Kevin no longer Kevin but a frame opening with the others, the whole like the dissolving edge of a lace skim of ice, their substance merging into the seething ocean, instantly present in the blowing spume as in the cold still layers two miles down. They became one with the current and tide, the endlessly shifting configurations of waves, until only the bones remained, tumbling gently in a long parabolic fall through the darkening green, a detritus of slivers and scoured knobs that built slowly, inexorably into a reef. Jogger's Reef. A monument. Indomitable man.

Parents bring their children to stand in the moonlight and watch the waves glide in, sighing at first, then snarling in white fury over this single, ivory rib of a great beast whose hour has gone by. ■



LONELY RUNNER BY THOMAS BAYRLE, FROM BAYRLE, 1970, UNIDA PUBLISHERS, THE HAGUE, NETHERLANDS

An Ecologist Standing Up Among Seated Social Scientists

by Paul R. Ehrlich

IN MY OPINION, and that of virtually every ecologist I know, humanity is now faced with an unprecedented escalation of environmental disruption, a situation that threatens the persistence of civilization as we know it. This threat presents an enormous challenge to ecologists. They are faced with the dual tasks of attempting to predict the environmental consequences of various courses of action and of communicating their results and their feeling of urgency to the lay public. The task is especially difficult because the public considers environmental disruption to be synonymous with "pollution" and sees it as just one more issue, often ranking below inflation or the energy shortage on a list of concerns. Most citizens are unaware of both the crucial nature of environmental problems and the ecological factors and constraints that play such an enormous role in the problems they rank as more important.

Environmental disruption embodies an even more daunting challenge to social scientists. First, they must become well informed on the ecological dimensions of the human predicament and help to design social policies to ameliorate it. Then they must share with ecologists the task of convincing the public, and especially the decision makers, that various kinds of actions are imperative—and that continuing on our present course constitutes a decision of the most lethal variety.

Unhappily, ecologists and social scientists, rather than cooperating to seek solutions, often find themselves at loggerheads. This is especially unfortunate, for social scientists and ecologists should be allies, not just out of necessity, but because of the similarity of intellectual milieus in which they operate and the common problems they face in the pecking order of science. For this reason the relationship between the disciplines of ecology and the various social sciences is the central theme of my discussion of the implications of the environmental crisis for the latter. A second focus will be the present confrontation between ecology and economics.

Common Bonds of Ecology and the Social Sciences

Ecologists and social scientists share a great many problems in conducting their research. They are interested in understanding systems of appalling complexity, and they very often cannot agree (even within a rather tight subdisciplinary group) on the appropriate questions to ask about these systems. From their perspective,

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At the 1980 Annual Meeting of the Southwestern Social Science Association in Houston, Paul Ehrlich was invited to deliver the plenary address. This is it, as printed in the March 1981 ***Social Science Quarterly*** *from the University of Texas Press. Ehrlich is a biology professor at Stanford, a population biologist of considerable scientific repute as well as a widely known spokesman on environmental issues. With his wife Anne he is co-author of the rather monumental* ***Ecoscience*** *(**NWEC** p. 52) and their recent book* ***Extinctions*** *(**NWEC** p. 48).*

He was invited to bust social scientists, and he did. It would be interesting to hear what an equivalent social scientist might say to a gathering of ecologists. (The title, by the way, is mine. Ehrlich called the paper "Environmental Disruption: Implications for the Social Sciences.") —*SB*

BOTH ECOLOGISTS AND social scientists must be constantly on guard against allowing their "physics envy" to direct them into problems that are solvable in terms of mathematical description but, it turns out, are utterly irrelevant to any understanding of the real world.

What is an (after all) zoologist doing touching a plant? That's one of Ehrlich's specialties — considering plants not "as so much vinyl" but as crucial co-evolvers with such animals as his lifetime obsession, the checkerspot butterfly. The term and idea of co-evolution was co-invented by Ehrlich and botanist Peter Raven.

sciences like physics and molecular biology are unbelievably "neat," with their teams of white-coated specialists manipulating genes, dissecting the clockwork of the universe and describing fascinating bits of machinery ranging from hadrons to double helices. Both ecologists and social scientists must be constantly on guard against allowing their "physics envy" to direct them into problems that are solvable in terms of mathematical description but, it turns out, are utterly irrelevant to any understanding of the real world. Avoiding the latter is, in my opinion, most difficult because the value system of science as well as its political system tends to press us continually toward that trap (and, indeed, may well have shoved the economists irrevocably into its jaws). Both ecologists and social scientists must also take care not to take refuge in jargon and silly verbiage in order to disguise ignorance or dependence on common knowledge. Ecology was once called "the science that calls a spade a geotome," and the exposition in many social science treatises would shame a gorilla.

Ecologists and social scientists also share distress at the disproportionate funding of the "hard" sciences. Ecologists, for instance, have watched billions poured into a premature, misconceived and mismanaged "war" on cancer, while money to investigate and control the predominantly environmental causes of cancer has been relatively limited. In spite of its overwhelming importance, federal support for pure ecological research is largely supplied by two underfunded programs in the National Science Foundation. The situation in the social sciences is even worse. For example, large amounts of money are being put into research on how to harvest grapes and tomatoes mechanically, but there is no significant support for research on the social disruption that success in developing harvesting machines would cause.

Two other things tend to unite ecologists and social scientists and to distinguish them from most (but not all) other scientists. One is their relatively great involvement in questions at the science/society interface. Other scientists have gotten their fingers burned in this area—notably nuclear physicists and, more recently, molecular biologists. But, at

least in the latter case, the naiveté of well-meaning molecular biologists in the recombinant DNA controversy was testimony to their former isolation from the policy arena.

The second uniting factor is the reciprocal need for ecologists interested in policy questions to be familiar with ideas from the social sciences and for social scientists to be knowledgeable about basic notions of ecology. Although ecologists have paid far too little attention to the social sciences, they have still made more of an effort to inform themselves than social scientists have made to learn about ecology. This is especially tragic because the social sciences, more than ecology, hold the key to solving environmental problems and because the validity of social science research much more often depends on an understanding of ecology than ecological research depends on a knowledge of the social sciences.

The fundamental reason for the latter, of course, is that social systems all operate within an ecological context and interact with the environmental setting in which society finds itself. In many cases (e.g., in macroeconomic analysis, studies of historical trends, investigations of international relations), failure to understand ecology may completely invalidate the work. An economist interested in the GNP of poor nations in the year 2000, for instance, or a historian concerned with the reasons for the fall of Rome both need an appreciation of the ecology of forest ecosystems.

On the other hand, most research on the ecology of natural systems can legitimately ignore the functioning of human society. Even when the system under study has been significantly perturbed by human activities, all that is usually required is a knowledge of the impact of the perturbation. The consequences for the productivity of a forest from a certain amount of particulate matter in the air, for instance, may be much the same whether the source of the particles is a volcano or a steel mill. And, if the impacts are different (because of, say, the size or chemical composition of the particles), then all that is required is that the difference in impact be measured and understood. There is no need to understand the functioning of the volcanic or industrial systems causing the impact, because in most cases there will be little or no feedback from the forest's productivity to the impacting system. Only when the ecologist turns his or her attention to human ecology (for instance, trying to predict or influence the long-term productivity of a forest now subjected to acid rains) does an understanding of the social system begin to loom large.

When the subject *is* human ecology, though, naiveté about the social sciences can be disastrous. For example, along with many other ecologists interested in conserving whales, I had long been puzzled by the behavior of the whaling industry. Repeatedly the recommendations of the biologists working for the International Whaling Commission were ignored. The result was that the whales, which could provide a permanent resource flow if harvested prudently, were overexploited and driven toward extinction. This mysteriously "self-destructive" behavior of the industry was explained to me by a Japanese economist. Like most conservationists, I had assumed the industry's goals would be to maximize the sustainable annual yield of whales. In fact the industry has been trying to maximize the present value of the whale resource. If various species of whales are driven to extinction by this strategy (which is not unlikely since they are a common property resource), the capital can be turned to the rape of another of an infinite (in the minds of economists) array of available resources. Such behavior, perfectly rational in the dominant economic paradigm, is so incomprehensible to someone familiar with the real world that it takes constant effort to recognize it. Yet in one form or another it is found throughout the world of resource economics.

For the most part, the naiveté of the ecologists has been restricted to making policy suggestions that some social scientists believe to be unfeasible or based on faulty assumptions. But in policy areas, which are still necessarily dominated by opinion, the social scientists themselves hardly put on a united front, nor do they have a sterling track record. Indeed, the degree to which professional social inquiry is necessary or even desirable as an approach to making policy has recently been brought into question from within the social sciences (Lindbloom and Cohen, 1979). To see how "soft" the conclusions of the social sciences are from the point of view of a decision maker, one need only note fluctuating opinions on how rapidly population control might or might not be achieved, wildly changing projections of future population size (Ehrlich et al., 1977: 225) or the multiple opinions of political

scientists and economists on how voters or economic systems will behave, and so on.

I do not say these things to denigrate the social scientists. The problems they face are enormously more complex than those normally dealt with by the ecologists, and the systems they deal with can change with extreme rapidity. In political systems the unfeasible can become feasible overnight—*vide* the Mexican government's turnaround on population policy in 1972 and the subsequent rapid start of a comprehensive population control program (Nagle, 1978). Around the same time, birthrates in the United States were dropping rapidly, to the complete surprise of sociologists. Virtually daily we are treated to the spectacle of economists making fools of themselves with predictions about inflation, recession and so on—predictions that are proven wrong almost before they are made. The economic system is complex and rapidly changing. In spite of the great progress they *have* made, economists clearly still don't understand many aspects of the basic functioning of the economic system.

The underlying problem is that the rate of cultural evolution of social systems far exceeds the rate of genetic evolution in ecosystems. Unconstrained by long generation times, society is "consciously" and continuously using foresight in trying to adapt rapidly. By contrast, in ecosystems, processes of succession, evolution and coevolution operate without foresight and often require many generations to produce discernible change. This results in a pace and pattern of change that in many ways is simpler to describe and predict.

All the advantages are not with the ecologists, however. Unlike the social scientists, they are unable to ask questions directly of key actors in the systems they study! All the more incomprehensible to other scientists, then, is the willingness of many behaviorist social scientists to forego this unique advantage out of some misguided effort to ape the methods (but not the spirit) of the physical sciences.

Conflict Between Ecologists and Demographers

By and large, I think ecologists have great sympathy for the difficulties facing social scientists. They therefore find it frustrating to find themselves so often in conflict with their social science colleagues,

SOME UNTENABLE ASSUMPtions in economic models include these: the world is infinite, technology will always permit a new resource to be substituted for one that is exhausted, there will be constant returns to scale, growth is good, price mechanisms are not sticky, income distributions and tastes are "givens," gold has been removed from the monetary system, equilibrium is the normal state of a market system, all human behavior is economically motivated. The appearance of precision is especially impressive to politicians, who do not realize that what many economic analysts are doing is equivalent to trying to determine the circumference of a roughly circular field they cannot measure by asking the village idiot to guess its diameter and then multiplying his answer by *pi* taken to 50 decimal places.

especially demographers and economists, scientists with whom ecologists feel they should have a naturally symbiotic relationship. It is especially sad and ironic that ecologists have most frequently found themselves at odds with demographers, ironic because ecologists learn the basic techniques of demography as undergraduates and graduate students—they are no strangers to Euler's formula, Leslie matrices, birth and death processes and so on. Population ecologists, of course, often use demographic techniques in their own work. And ecologists interested in social

problems normally take their human population data from the demographic literature and accept the validity of procedures used by demographers to estimate vital rates and to make population projections.

The basic source of conflict seems to come from a refusal by demographers to accept conclusions about vital rates that derive not from their area of expertise but from that of ecologists. The roots of the dispute can, I think, be found in the training for the two fields. Demographers, being social scientists, are fascinated with birthrates. These rates fluctuate in response to all sorts of social factors—the sizes of cohorts, the state of the economy, the status of women, prevailing community standards and so on—which interact in complex ways still not clearly understood. It is a rich area for investigation by those interested in the workings of society. Although death rates are also affected by a wide variety of social factors in complex ways, they are also more fundamentally "biological"—the major causes of death worldwide still being diseases that are only partially amenable to control.

One response of demographers to this difference has been to borrow from the economists an irrational faith in technological progress and assume that future death rates can only remain low or become even lower. One, for example, will search in vain for a United Nations population projection variant that includes rising death rates, even though such rises have been observed in recent years (e.g., van der Tak et al., 1979). Ecologists, in contrast, work in a world of population dynamics in which birthrates tend to vary significantly only over evolutionary time. Primary control over changes in sizes of populations is seen not to reside in changing birthrates but in variations in *death rates.* This is true even for social animals, among which birthrates may respond dramatically to environmental changes, since death rates usually also respond to the same changes. I think it is therefore a useful oversimplification to say that demographers interested in human populations tend to focus on birthrate changes, while ecologists who work in animal demography (or plant demography) have been trained to look hard at death rates. And it is a very different estimate of what will happen to human death rates in the not too distant future that puts ecologists at odds with many demographers and with almost all economists.

Confrontation of Ecology and Economics

Economists are the social scientists who most frequently come into conflict with ecologists. Indeed it seems fair to say that most ecologists see the growth-oriented economic system and the economists who promote that system as the gravest threat faced by humanity today. For the majority of economists, a faith in the ability of science and technology to do the impossible (e.g., Simon, 1977) is unfortunately combined with "growth mania." Growth mania is a fixation on growth for growth's sake—what Edward Abbey has called "the creed of the cancer cell." Most economists are utterly ignorant of the constraints placed upon the economic system by physical and biological factors, constraints that make root causes of the present global inflation simultaneously crystal clear to ecologists and totally mysterious, or misapprehended, by most economists (for a lucid summary, see Fuller, 1980).

This was brought home to me most forcibly at a preparatory meeting in Stockholm for the 1974 World Population Conference at Bucharest. Most of the participants were economists, even though the subject of the meeting was the interaction of resource and environmental factors with demographic variables. There were only a few physicists and biologists present. For several days we listened while the economists repeatedly made suggestions that in one way or another involved violations of the second law of thermodynamics. For instance, one proposed solution to the world food problem was to raise cattle by feeding them *exclusively* on their own droppings! The economist with the cattle-feeding proposition had probably heard that cattle feces can be recycled in cattle or chicken feed. It can, indeed, as a supplement—since a cow's digestive system cannot extract all of the energy from its feed on a single pass-through.

As each new perpetual-motion machine solution was propounded, one of the biologists or physicists would simply point out that it violated the second law. Finally, in frustration, one of the economists blurted out, "Who knows what the second law of thermodynamics will be like in a hundred years?" The answer, of course, is that every physicist and biologist knows, because the second law isn't some high

flown theory but simply a codification of thousands of observations made by every human being every day. Ice does not spontaneously form in a martini in a warm room, cats squashed on highways don't reassemble themselves and trot away, the artificial coloring in Coca Cola does not spontaneously coalesce into a glob in a corner of the bottle, and so on.

The second law states (among other things) that, in any real world process in which energy is used, some of that energy becomes unavailable for future use. It is this aspect of the law that rules out perpetual-motion machines; it is this aspect that is taught most frequently in elementary science courses. But even in the realm of energy, economists persist in believing in miracles. For instance, Zeckhauser once claimed (1973) that the reason oil is not recycled is that nuclear power is cheaper!

The problem probably is that economists have too long stared at the perfect cycle descriptions of macroeconomics found in standard economics texts. One need only turn to the illustrations showing the generation of national product in the standard economic texts of Samuelson (1976) or Lipsey and Steiner (1975) to see the macroeconomic system functioning with no inputs from or outputs to the rest of the world—a continuous and closed circular flow of goods and services. This point has also been made by economist N. Georgescu-Roegen (1973). The standard response that the diagrams adequately idealize the circular flow of dollar values of products and costs misses the point. Young economists clearly acquire the notion that the market system is self-sustaining, and the writings of older economists make clear that few ever learn better.

In an extreme form, the dissociation of economics from environmental realities can be seen in the notion that the market mechanism completely eliminates the need for concern about diminishing resources in the long run (e.g., Barnett and Morse, 1963; for an especially naive treatment see Simon, 1977:497ff). Three serious, respected economists (Anders, Gramm and Maurice, 1978: 39, 42) have written:

> In a fundamental sense natural resources are not fixed but are functions of capital accumulation and with it of science and technology . . . Man largely creates his own environment and his own resources . . . Only if we eliminate the market incentives for innovation and investment, or reduce the scope of market forces through further attenuation of private property in resources, must we face a real long-term "resource crisis." The only nonrenewable and nonsubstitutable resource is the set of institutions known as a market order, which eliminates crises with respect to physical resources.

THE DISCOUNT RATE IS now so high that even the mid-range future does not exist for economists. This would all be well and good if decision makers were not heeding the siren song of economics for continued growth—a song that is never prefaced by statements such as, "You should make careful note that our advice may well lead to worldwide disaster 10 to 20 years from now because many of the most important aspects of the world's economic system are not considered in our calculations."

The complete naiveté of Anders and company about the physical and ecological dimensions of resource mobilization is standard. Somewhat more surprising, however, is that they consider the experience of this century to validate the proposition that resources will be infinitely substitutable in perpetuity. The notion, for example, that there could be (and in the opinion of many scientists already is) a pattern of diminishing returns in technical innovation, has clearly never crossed their minds.

The general approach of economics to ecology is to attempt to pull the environment piecemeal into the economic system, rather than recognize that the economic system is completely and irretrievably embedded in the environment. The emphasis is on "using" the environment. Ecological problems are viewed as pollu-

tion and tend to be attacked by the inefficient technique of attempting to remove pollution from the environment or to catch it at multitudinous effluent points (e.g., auto exhausts, factory smokestacks) before it escapes to the environment. Unbeknownst to most economists (and other lay persons), pollution is just one symptom of much more grave and fundamental ecological problems. These problems are most generally described under the rubric, "loss of environmental services."

Crucial to an understanding of the ecological dimensions of the human predicament is a familiarity with the essential "public service" functions of ecological systems. These systems provide humanity with free services that are absolutely essential to the maintenance of civilization. These include maintaining the quality of the atmosphere, running the hydrologic cycle (which supplies society with fresh water), disposing of wastes, building and maintaining soils, recycling nutrients essential to agriculture, controlling more than 95 percent of all potential pests of crops and carriers of human disease, providing food from the sea and maintaining a vast genetic "library" from which *Homo sapiens* can withdraw an enormous variety of medicines, spices, organisms essential to medical research and, above all, the germ plasm that may be crucial to the preservation of high-yield agricultural systems.*

These vital services are increasingly threatened by the activities of a growing population, whose affluence is also growing. Pollution is one visible side product of these activities; "desertification," loss of agricultural land to cities and stagnation of oceanic fisheries production are others. Perhaps the best available measures of the assault by humanity on the functioning of these critical life-support systems are rates of energy use. Energy is intimately involved in humanity's environmentally destructive activities: paving over, plowing under, releasing pollutants, mining, filling, overfishing, manufacturing and distributing pesticides and so on. Indeed the majority of the global ecological problems identified by the prestigious Williamstown Study (Study of Critical Environmental Problems, 1970) were directly connected to the mobilization and use of energy—for example, the buildup of CO_2 from fossil-fuel combustion, oil spills and discharges of radioactivity and heavy metals into the environment.

The close connection between energy and environmental deterioration explains why ecologists have a view of the energy crisis that is exactly the opposite to that of most lay persons and economists. Ecologists know that the basic problem is not an inability to mobilize enough energy to meet the needs of society. Instead, the crisis in overdeveloped countries like the United States is the mobilization of much too much energy. America faces a crisis not of too little energy supply but of too much energy use.

The reason that the conflict between ecologists and economists is more severe than between ecologists and demographers is simple. Economists have the ears of politicians; demographers generally do not. Moreover, ecologists must stand by and listen to economists come up with "solutions" that can only make the problems of society much worse, and then watch politicians attempt to carry out those "solutions." President Carter's synfuels proposals and his Energy Mobilization Board are recent examples of dangerous steps taken in response to, among other things, the economists' topsy-turvy perceptions of the role played by energy in human affairs. In fairness, however, I must note that many economists have opposed the synfuels proposal on both economic and environmental grounds. But the idea that growth is essential, a central theme of neoclassical economics, is a driving force behind much U.S. energy policy.

Economists in large part are carrying out operations that are familiar to ecologists. Economic models, like ecological models, are often based on utterly untenable assumptions and endowed with false precision. Some untenable assumptions in economic models include these: the world is infinite, technology will always permit a new resource to be substituted for one that is exhausted, there will be constant returns to scale, growth is good, price mechanisms are not sticky, income distributions and tastes are "givens," gold has been removed from the monetary system, equilibrium is the normal state of a market system, all human behavior is economically motivated. The appearance of precision is especially impressive to politicians, who do not realize that what

*Further information on ecosystem services, the assaults upon them and the basic interactions among population, resources and environment can be found in Ehrlich et al., 1977.

many economic analysts are doing is equivalent to trying to determine the circumference of a roughly circular field they cannot measure by asking the village idiot to guess its diameter and then multiplying his answer by *pi* taken to 50 decimal places.

Pseudoquantification is, of course, also one of the main reasons for the relative success of economists in extracting money from funding agencies. Both Adam Smith and Karl Marx would have had a great deal of trouble getting a grant from the National Science Foundation. That the funding model for the social sciences comes from the hard sciences badly skews both research priorities and the distribution of prestige in these fields.

This does not mean there hasn't been progress made in economics, even in developing mathematical models. In some ways, economics is the most advanced of all social sciences. In its understanding of the details of the system with which it works, economics is perhaps more advanced than ecology. The problem is that the limited successes of economics have endowed many of its practitioners with a hubris that simply is not justified at the moment by the state of the art. Very different views of how various aspects of the economic system work are held by, for example, the followers of Robinson, Samuelson, Von Mises and Friedman. This alone makes it clear that, even in the domain within which economics has had its greatest success, totally divergent perceptions of what the problems are and how they should be solved remain respectable. Considering the nature of social systems, this is understandable and perhaps inevitable—indeed, there is no reason to believe that a single view of economics will ever hold sway. The neoclassical and post-Keynesian schools may never get together. The danger to humanity becomes severe, however, when economists both dodge the value questions fundamental to their own discipline and attempt to ignore the noneconomic constraints on the economic system.

Still, the situation in economics is not entirely bleak. Economists like Kenneth E. Boulding, Nicholas Georgescu-Roegen and Herman E. Daly have begun to shape a new "steady-state" or "sustainable" economics. Daly has been especially effective in this area, and his path-breaking book, **Steady State Economics: The Economics of Biophysical Equilibrium and**

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Moral Growth (1977; $8.80 postpaid from W. H. Freeman and Company, 660 Market St., San Francisco, CA 94104), contains both a devastating critique of old-time economics and a clear explanation of his proposed mechanisms for accomplishing the task of limiting throughput. Finding ways to do that, greatly reducing the rate at which society turns resources into rubbish, is central to environmental problems and thus also to economics. Sadly, but not unexpectedly, this pioneering work is ignored in many (if not most) departments of economics.

The challenge of creating an ecologically sound, sustainable economic system is daunting to say the least. Somehow the new system will have to capture values unimaginable to most of today's standard economists. For example, how is one to work into the economic calculus the enormous potential benefits of an undisturbed Amazon basin that could accrue to people living in North America? How can one estimate future American lives to be saved by drugs as yet unknown to be extracted from the secondary chemicals of Amazonian plants? How can one predict impact of the destruction of the Amazonian forest on North American agriculture when climatologists can offer only the wildest of guesses? Results might be disaster for the American farmers, or little change, or changes that would produce a net economic benefit.

One stock response of economists to such questions is to claim the right to ignore them because the tools of economics can't handle them. Another response is to ignore them because the discount rate is now so high that even the mid-range future does not exist for economists. This would all be well and good if decision

makers were not heeding the siren song of economics for continued growth—a song that is never prefaced by statements such as, "You should make careful note that our advice may well lead to worldwide disaster 10 to 20 years from now because many of the most important aspects of the world's economic system are not considered in our calculations," or, "Beware of our advice because we have considered no consequences of heeding it that might occur more than a decade from now." In short, a fundamental problem with economics is the inflated view that economists have of the very real but limited success of their discipline.

Ecology and the Other Social Sciences

History as a discipline has also suffered from a failure to understand the ecological factors that shape the human condition. An ecologist visiting the Mediterranean basin sees primarily a "goatscape," a place in which a succession of peoples has gradually damaged the life-support systems to such an extent that the rise of a major power in the area is now virtually unthinkable. The world is dotted with the sites of previous historical ecocatastrophes —the Tigris and Euphrates Valley, the areas occupied by the ancient Mayan and Khmer civilizations, much of the southwestern United States and the Australian outback, for examples. There is a growing historical-anthropological literature that recognizes the role of environmental factors in shaping the course of human history (e.g., Hughes, 1975; Bryson and Padoch, 1980), but on the whole these factors remain barely mentioned in history courses and totally removed from the public consciousness. As a result many people view the human predicament today as relatively unalarming "because people have always awakened in time and managed to solve problems such as we now face." Sadly, many peoples did not awaken in time and did not solve their problems. The civilization that is now failing to solve its problems is not local but global, something that is all too rarely recognized.

Obviously from the biased viewpoint of an ecologist, I think practitioners of professional social inquiry other than demographers, economists and historians—e.g., political scientists, anthropologists, sociologists, psychologists—could all benefit from a broader understanding of the environmental matrix in which *Homo sapiens* is embedded, although some do pretty well right now (e.g., Pirages, 1977). I would furthermore like to see some shift in research priorities in all fields of social inquiry to focus more strongly on the central problems facing humanity in what many of us think of as the eleventh hour: problems like disarmament, inequity, energy policy and learning to live within rather than to conquer the environment.

If, for example, there were a thermonuclear war, then all of the other problems in which ecologists and social scientists are interested will be automatically "solved." And yet ecologists have put pathetically little effort into elucidating for decision makers or the general public the environmental reasons that industrial society is unlikely to be able to recover from such a conflict. Indeed, the most recent attempt at an ecological assessment of the effects of thermonuclear war, by the National Academy of Sciences (1975), was ludicrous in its inadequacy. Although there is a substantial social science literature on nuclear war, it is still small compared to both the magnitude of the problem and the magnitude of social science literature as a whole. We of course cannot be sure that greater effort in these areas by the social scientists would decrease the probability of Armaggedon. But it seems to me that there is no alternative but to try. Just the increase in investigative activity might itself help bring home to decision makers how precarious social scientists feel the human condition to be.

Limits of Ecology

Having criticized the social scientists, let me reemphasize that I consider that professional ecologists display an array of shortcomings depressingly similar to those found in the social sciences, including tunnel vision, research directed at questions of monumental triviality and so on. And our record in making predictions (mine included) is far from perfect (though much better than that of economists!). A detailed inspection would probably reveal the sociology of ecology to be not terribly different from the sociology of sociology. And the ignorance of the social sciences that characterizes most ecologists is no more admirable than the ignorance of ecology to be found among most economists. It just happens that the ignorance of ecologists is less important in the big picture.

Furthermore, the ignorance of ecologists is hardly restricted to areas outside of their discipline. It's a sad fact of life that ecologists have not yet unraveled the mysteries of ecosystems to the point where the long-term consequences of most human interventions can be predicted with any degree of precision. Crucial matters like the relationship (if any) between the diversity and the stability of the ecological systems remain under debate (Goodman, 1975; Murdoch, 1975).

Indeed, the science of ecology can really provide only three things of importance to decision makers. The first is specific predictions on certain limited problems. For example, ecologists can predict with assurance that, even over the medium term, broadcast use of pesticides to control insect pest populations simply won't work. Or, given appropriate information on growth rates and related facts, ecologists can predict what rate of harvesting is likely to produce a certain sustainable yield of a renewable resource and what rate of harvesting is likely to destroy the resource.

Second, on a more general scale, ecologists can provide a description of human dependence on the public service functions of the ecological systems described above. This is probably the key concept that ecologists can provide to decision makers, and failure to impress it upon them is also a major failure of the discipline.

The third important lesson to be learned from ecology flows automatically from the second, namely that humanity should be extremely conservative in its treatment of Earth's ecosystems. For every release of a toxic substance, every plowing under of a field, every filling of an estuary, every cutting down of forest, every forcing to extinction of a population or a species threatens the integrity of society's life-support systems. While the current state of ecological science cannot predict with accuracy the consequences of any given act or extinction, it can predict with extreme accuracy the end result of continuing our assaults on Earth's systems: the collapse of civilization as we know it.

This point is perhaps best clarified with an analogy. Suppose you saw a group of people prying rivets out of the wing of an airplane you were about to board. Imagine, also, that you didn't know the exact details of the airplane's construction, but were aware that the loss of some rivets wouldn't *necessarily* cause the wing to fail. Would this make you relaxed about the prospect of flying in that airplane? Would you be satisfied if you asked one of the people to stop prying out a rivet and that person simply said, "You can't prove that the loss of this rivet will fatally weaken the wing, so it's perfectly all right for me to take it out"? Would you be relieved if he said, "Don't worry . . . see, I've just taken out the rivet and the wing hasn't fallen off"? You would, of course, have to be insane to fly in that airplane after such a conversation. Needless to say, the treatment of that imaginary wing bears considerable resemblance to the present treatment of the life-support systems of Spaceship Earth—except that we have no option as to whether or not we'll fly on her!

Yet, the vast majority of *Homo sapiens*

ONE SOLUTION WOULD BE for all people to "tithe to society"—that is to give at least 10 percent of their time to helping society function better. For professional scientists, the tithe could be research or other work determined by social need, not personal interest. This paper, for example, is part of my tithe; my main interests lie not in the world problematique but in trying to answer rather esoteric questions about the ecology and coevolution of insect and plant populations. I suspect, by the way, that exposure to "applied" problems will enhance, not decrease scientists' interest in them. My "tithe" grew rather rapidly to fill about half of my professional life.

goes merrily on its way, popping rivets—exterminating populations and species—without the vaguest notion of the probable consequences of such behavior. But we can at least be sure that those consequences will not be pleasant. They can be expected to include the further collapse of fisheries, enormous outbreaks of pests and parasites, the advance of deserts, erosion, the exhaustion of freshwater sources, the progressive failure of high-yield agriculture and forestry, and rapid climatic changes. These in turn will induce catastrophic famines, plagues and probably thermonuclear war.

What Can We Do?

Having been largely negative throughout this essay, let me turn now to what might be done about all this. The first thing, of course, is to try to increase communication between ecologists and social scientists.

It is uncertain, however, whether increased communication can be turned into the disciplinary restructuring and the emergence of a new intellectual force needed to help humanity solve the nearly overwhelming problems it now faces. It is widely agreed that interdisciplinary programs are required if the appropriate breadth and depth is to be brought to bear. But such programs have difficulty thriving in universities; money, tenure and prestige still flow largely through departments organized on the basis of classic disciplines.

Even if interdisciplinary programs *do* thrive, it is not clear that this will automatically lead to a great increase in research on the world problematique. Few scientists, especially academic scientists, want their professional interests guided by social needs. Many, if not most, became academics so they could spend their lives trying to figure out how the world works and communicating their findings to students. They want to study what interests them, regardless of financial pressures or societal predicaments.

One solution would be for all people to "tithe to society"—that is to give at least 10 percent of their time to helping society function better. For professional scientists, the tithe could be research or other work determined by social need, not personal interest. This paper, for example, is part of my tithe; my main interests lie not in the world problematique but in trying to answer rather esoteric questions about the ecology and coevolution of insect and plant populations. I suspect, by the way, that exposure to "applied" problems will enhance, not decrease scientists' interest in them. My "tithe" grew rather rapidly to fill about half of my professional life.

Any pressures to change the course of my basic research would be met with great resentment. On the other hand, when tithing I am quite open to outside forces helping to determine the direction of my research. For example, both my wife, Anne, and I were originally uninterested in the subject of immigration. But, as it became increasingly important in the policy arena, we found ourselves collaborating with a historian in an investigation of the illegal immigrant "problem" (Ehrlich et al., 1979). Parenthetically it turned out not only to be an extraordinarily complex issue, but a most fascinating one as well.

Equally, I feel that if a historian is fascinated by the sequence of attendees at the Council of Basle, it is a worthy dedication of his or her professional life to work out the influence of that sequence on the results of the Council. But I would hope that historian would also be willing to tithe to his or her society and, in the course of tithing, investigate a question of immediate consequence to some important social problem. For example, one significant question in the current dispute over illegal immigration from Mexico and the rise of Hispanic culture in the United States concerns the intent of the Treaty of Guadalupe Hidalgo. Did the drafters of the treaty mean to guarantee the maintenance of Spanish language and culture north of the border (as some Mexican-Americans claim), or just the property rights and religious freedom of Hispanics (as the treaty seems to say)? A thorough analysis would be most useful. There is also a great need for solid information on the process of integration of previous immigrant groups, information that historians, economists, sociologists and psychologists could have supplied us, but in large part have not. In the same area, the relative lack of attention paid by social scientists to the study of (and teaching about) our closest Latin American neighbors—in contrast to, say, continual rehashing of modern German history—is a monument to misplaced priorities.

Finally, we all have to face the question of whether or not humanity is approaching the limits of benefits from research, inno-

vation and intervention in human and natural systems. My own views are that we may well be, but as a typical academic I can't resist the urge to recommend research—even research on the limits to research. Scientists interested in these issues should read biologist David Ehrenfeld's most provocative little volume, **The Arrogance of Humanism** (1978; $5.95 postpaid from Oxford University Press, 1600 Pollitt Drive, Fair Lawn, NJ 07410).

Conclusion

Being either an ecologist or a social scientist at this crucial juncture in human history can be frustrating, depressing and even downright scary, but never dull. Ecology is probably the most rapidly changing branch of biology, and over the last decade the increase in the concern of ecologists about the social implications of their knowledge has been spectacular. Similarly, in economics and other of the social sciences, there are signs that new paradigms are beginning to emerge. Paradigm shifts may be a source of apprehension for more conservative scientists, but they are times of great excitement for a discipline. The coming time of transition should be especially interesting, since it will include an attempt to reintegrate into social sciences age-old value questions ignored in the era of physics envy that is now beginning to fade away.

No, things won't be dull for any of us. Working with complex systems may never provide the same kinds of joy of discovery that sometimes brighten the lives of physicists and molecular biologists. Rarely do ecologists or social scientists get to run around shouting "Eureka." But at least they have the pleasure of knowing that they are addressing much more important questions.* ■

*Of course, physicists and molecular biologists will disagree with this evaluation. But since ecology includes, among other things, all of the interactions of human beings with each other and with their nonhuman environment, it includes physics and molecular biology. Therefore, as an ecologist, I feel the judgment is within my field of expertise.

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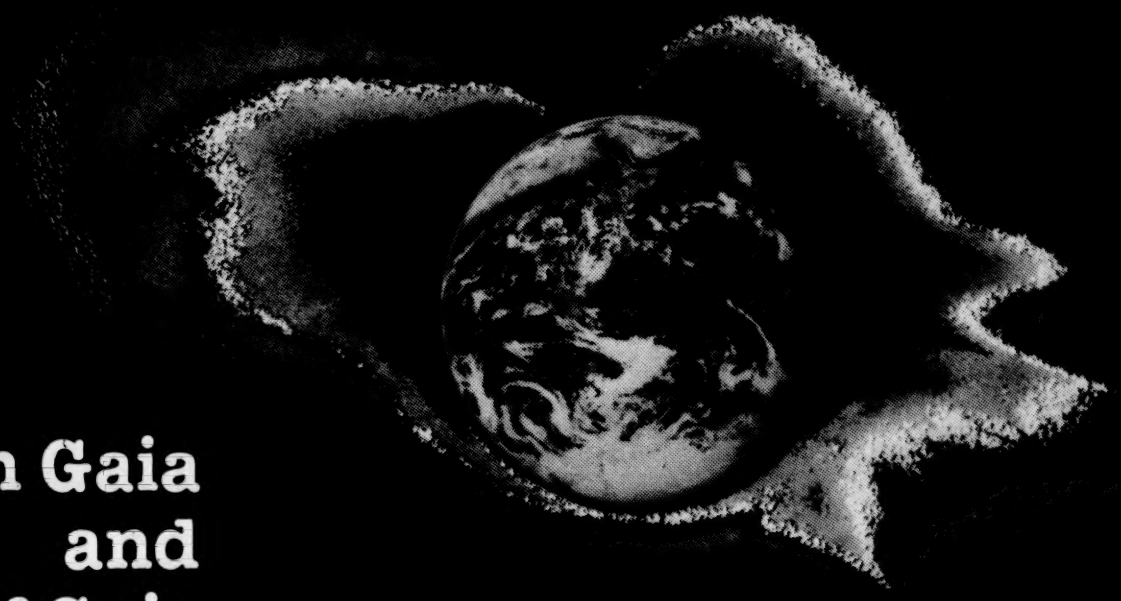


More on Gaia and The End of Gaia

by James E. Lovelock

The Gaia Hypothesis, you may recall, is the notion proposed by British chemist Lovelock and American microbiologist Lynn Margulis, that the chemical composition of the Earth's atmosphere is a highly subtle buffering device maintained by all of the planet's life — making the Earth as a whole in effect one life. The following recent thoughts by Lovelock on the subject are the closing 1/3 or so of a talk he gave at The Lindisfarne Fellows Conference, June 4, 1981. For a cassette of the complete talk, send $6.50 to The Lindisfarne Press, R.D. 2, West Stockbridge, MA 01266. —SB

• • • THOSE ENvironmentalists who believe that the composition and climate of the Earth are independent of the biosphere regard life as fragile and in danger of destruction. We do not disagree; if life and the environment were evolving independently, then life would be fragile, for it would be at the mercy of any adverse change.

There is a strangely familiar ring to the word "fragile." It was widely used in Victorian times about women — possibly to justify male domination. Whenever an environmentalist tells me that life on Earth is fragile and may fall apart if the ozone layer is slightly depleted, I think of my Victorian grandmother. If we accept Gaia at least for argument, this fragility is a nonsense. Gaia, like the Victorian women, is very tough indeed. (They had to be to endure the insults.)

Just how tough is Life or Gaia is proven by its survival in spite of at least thirty near-mortal blows from the impact of planetessimals. Every 100 Myears[1] or so, a small planet made of rock and iron about twice the size of Mount Everest and moving at 60 times the speed of sound hits us. The kinetic energy of its motion is such that if it were uniformly dispersed over the whole Earth it would be equivalent to the detonation of 30 Hiroshima-sized atom bombs for every square mile. Fortunately its effects are to some extent localised.

An impact such as this 65 Myears ago caused the extinction of over 60% of all species then present. It was one of at least 30 such impacts since the start of life, and some were 20 times more severe. Gaia is hardly fragile to withstand blows like these, and indeed the surge of speciation following such events is indicative of her capacity to recover. It is even possible that we as a species resulted from the stimulation of one of these recent impacts.

It seems very unlikely that anything we do will threaten Gaia. But if we succeed in altering the environment significantly, as may happen with the atmospheric concentration of carbon dioxide, then a new adaptation may take place. It may not be to our advantage.

When we talk about Life or the biosphere, we tend to forget that prokaryotes — simple bacterias — ran a successful biosphere and represented Life on Earth for nearly two eons[2]. They are still today responsible for a great deal of the running of the present system. Lynn Margulis remarked that the true function of mammals, including humans, might be to serve as ideal habitats for the few pounds of bacteria carried in the guts. They are there kept warm and well fed in what must seem their own private heaven.

Such thoughts of Gaia remind us also that there is more to life than humans, cuddly animals, trees, and wildflowers. Those who rightly are concerned for these must also be concerned for their less-attractive infrastructure.

A frequent criticism of the Gaia hypothesis is that it engenders complaisance through the belief that Gaian feedback will always protect the environment against any harm that mankind might do. It is sometimes more crudely put that Gaian ideas give industry the green light to pollute at will. Scientific hypotheses are all too often used as metaphors in arguments about the human condition. This misuse of Gaia is as inappropriate as was the use of Darwin's theory to justify the morality of laissez-faire capitalism.

Gaia is a hypothesis within science and is therefore of itself ethically neutral. We have tried hard to keep faith with the rules of science. If the hypothesis is used outside this context, I will say again it is just a looking-glass for seeing things differently. It is all too easy with a looking-glass accidentally to reflect yourself.

The environmentalist who likes to believe that life is fragile and delicate and in danger from brutal mankind does not like what he sees when he looks at the world through Gaia. The damsel in distress he expected to rescue appears as a buxom and robust man-eating mother. The same environmentalist will take the Second Law of Thermodynamics as a mirror and see in it a justification for the apochryphal

1.) Myear = 1 mega-year = 1,000,000 (one million) years

2.) 1 eon = 1,000,000,000 (one billion) years

Murphy's Law — "If anything can go wrong it will" — and view our universe as the setting for a tragedy, with us as the players in a deadly game in which we cannot break even yet alone win.

I see through Gaia a very different reflection. We are bound to be eaten, for it is Gaia's custom to eat her children. Decay and death are certain, but they seem a small price to pay for life and for the possession of identity as an individual. It is easily forgotten that the price of identity is mortality. The family lives longer than one of us, the tribe longer than the family, the species longer than the tribe and life itself can live as long as it can keep this planet fit for it.

Perhaps the strangest knowledge to come from our quest for Gaia has been the realisation that robust though she may be, the conditions of the Earth are moving close to the point where life on Earth can no longer continue. The quite unstoppable increase of the Sun's heat soon will be beyond the capacity of regulation or adaptation. In human terms the Earth is still forever inhabitable. But in Gaian terms if the length of life on Earth were one year, we are now at December 29th.

Before our Earth becomes a problem in planetary geriatrics with flimsy contraptions in Space like sunshades to keep it alive a few more millennia, I hope that the parallel moral problems inherent in human geriatrics are solved.

It may seem to be pessimistic to see this our Earth, as well as the universe itself, running down to a heat death. But only if you are one of those who wants his cake as well as to eat it. You can't use a flashlight to see your way in the dark and expect also to have the batteries last forever.

Or as better expressed by Edna St. Vincent Millay:

My candle burns at both ends;
It will not last the night;
But, ah, my foes, and, oh, my friends—
It gives a lovely light.

■

In response to questions about the planetessimals, Lovelock remarked that we're about due for another one. He also noted that our space technology is now probably adequate to detect one coming and divert it, if we're alert.

As for the approaching demise of Gaia, of Earth, he and Michael Whitfield (from the Marine Biological Association, Plymouth, England) submitted the following paper as a letter to **Nature**, *the preeminent British science magazine. So far as I know, it has not yet been published there, so we are printing it to help keep the conversation going. As Lovelock has remarked, "In its development as an hypothesis Gaia has been neglected rather than criticized by the scientific community." Unfortunately I do not have the list of references meant to accompany the paper.*

At the Lindisfarne gathering Lovelock summarized the scenario of the death of Gaia, including the steady decrease of CO_2 in the atmosphere to offset the growing heat from the Sun. Someone asked if the increase in atmospheric CO_2 due to current civilization was beneficial then in terms of Gaia. Lovelock pointed out that all it does is hasten the end. The only way to postpone Gaia's heat death is to reduce incoming solar heat with orbiting shades of some sort.

So there it is. The end of the world is not nuclear. No imaginable nuclear war could have the devastating effect of even one of the many planetessimals that have smote Gaia. The end of the world is solar, and it is certain — and in Gaia's terms imminent. —SB

Life Span of the Biosphere

by J.E. Lovelock and M. Whitfield

THERE HAS been life on Earth for at least 3.5 Gyears[1] and it is usual to assume that a comparable future lies ahead. The purpose of this letter is to raise the possibility that the life span of the biosphere is nearly ended and that its death is due in a hundred million rather than in thousands of millions of years.

It is a property of stars to increase their burning rate as they age. The Sun, if a typical star, can be expected to have increased output by 30% since the Earth's origin 4.5 Gyears ago. The rate of increase grows exponentially so that a further 10% will take only 1.2 Gyears. In spite of the growth in solar output it is tolerably certain that the climate of the Earth has changed little during the 3.5-Gyear life of the biosphere. The geological record and the persistence of life both indicate that neither freezing nor boiling conditions have ever prevailed. Indeed it is probable that the Earth's mean temperature at no time departed the range 15° to 70° Celsius (59° to 158° Fahrenheit), and contrary to the expectations of simple physics it appears to have been warmest at the beginning and, for the most part, has cooled ever since.

The puzzle of the Earth's constant climate has received a number of plausible explanations. Sagan and Mullen (1972) were the first to suggest that the infant biosphere was warmed by a blanket composed of an atmospheric gas which was able to transmit sunlight but hinder the escape of heat to space. They suggested that the early atmosphere was rich in ammonia and other reduced gases and that these exerted a "greenhouse" effect which kept the Earth warm enough for the start of life. This proposal is still favoured except that CO2 is now preferred as the candidate blanket gas (Owen et al. 1980), on account of the rapidity of ammonia photolysis. Henderson-Sellers and Schwarz (1980) have countered by proposing a large inorganic ammonia source able to sustain a sufficient ammonia concentration.

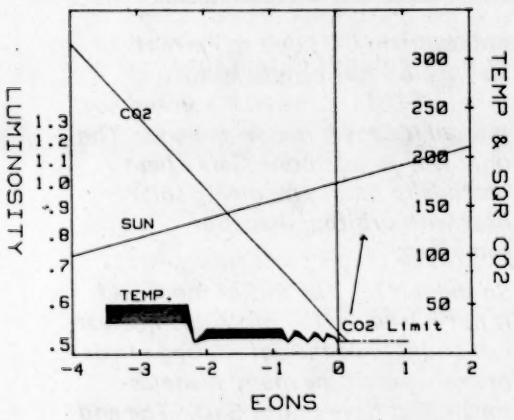
Lovelock and Margulis (1974) introduced the Gaia hypothesis, which postulated the biological regulation of the climate and chemical composition to keep an environment optimum for the current biosphere. Under this hypothesis whatever greenhouse gas or other agency served to keep the young planet warm must have been smoothly and actively reduced in its effect from then until now. Otherwise the mean temperature could by now be above 100° Celsius (212° Fahrenheit). The smooth control of climate could have been solely by a biological negative feedback, but this seems unlikely in view of the tendency of the biota to use the environment opportunistically.

Whatever the explanation, there is little reason to doubt that the Earth's climate has always been within the narrow range tolerable for life, but the Sun's output continues to grow and at an ever-increasing rate. The figure illus-

1.) Gyear = 1 giga-year = 1,000,000,000 (one billion) years = 1 eon

trates the most probable course of its output from 4 Gyears ago to 2 Gyears in the future. The growth rate used is that given in a review paper on solar behaviour — Newkirk (1980). The past and possible future mean temperatures are also shown, as is the concentration of a gas such as CO2 needed to compensate for the changing solar flux. The CO2 estimate is based on the 3.5 Gyears BP[2] concentration proposed by Owen et al. of 10% by volume. It is linked to the present value of 0.03% by the linear relationship between the

2.) BP = before present?



The figure illustrates the variation of the solar luminosity relative to its present value taken as 1.0 with time expressed in eons (giga years — one billion years) before and after the present time. Also illustrated on the same time scale are the decline in carbon dioxide concentration, expressed as the square root of the concentration in parts per million by volume and the approximate mean surface temperature in degrees centigrade.

square root of the CO2 concentration and mean surface temperature, which is thought to be true for higher CO2 concentrations.

If the principal agent for temperature regulation is the concentration of infrared-absorbing gas, then it seems that we are very close to the lower limit of possible adjustment. If we assume that the future decline of CO2 matches the solar output, as it may have done in the past, then 150 ppm (parts per million) concentration will be reached in ca. 100 Myears[3]. This concentration is the lower limit tolerable for photosynthesis. Some adaptation both to lower CO2 and to warmth is possible, but it would not buy much time.

Early life was protected against freezing by a CO2 blanket, but such protection is no longer needed on account of the warmer Sun. It is possible that radiation balance for an optimal climate and equilibrium CO2 concentration was passed some time ago and that we are now in a regime where the atmospheric CO2 is driven low by the biosphere to sustain a comfortable temperature. It may be significant that the CO2 concentration of the soils is close to 1% — a level which is both biologically favorable and which also increases the rate of its removal from the atmosphere.

The climate only recently entered its present cool and unstable phase with glaciations alternating with warm periods. The onset and course of these climatic oscillations is similar to that of the behaviour of a simple cybernetic system driven close to the lower limit of its range of regulation. The impact of planetessimals occurs at intervals of approximately 100 Myears. The last impact occurred 65 Myears ago and is thought to have led to the great extinctions of those times — Alvarez et al. (1979). It was followed by a brief period of warmer temperatures. It seems possible that a future impact will, by simultaneously perturbing the biosphere and causing a heat pulse, trigger the final warm phase for the Earth.

Are there other mechanisms available to sustain the present equable temperature in spite of a warmer sun? Some increase in albedo is possible by desert formation or snow cover, but, as observed by Henderson-Sellers (1979), this tends to be neutralised by a concomitant change in cloud cover. Furthermore, protection by snow cover is inherently unstable in a warming environment. One possible remedy would be the construction of sunshades in a geosynchronous orbit placed to provide a permanent partial eclipse.

We are indebted to Dr. A.F. Tuck and Professor R.M. Garrels for the stimulation of their suggestions. ■

3.) Myear = 1 mega-year = 1,000,000 (1 million) years

How can a space lightsail work with no keel in no water?

I had a question on the article "America in Space," by Eric Drexler (Spring 1981 CQ). I bought it, to the last word — but what do I, a scientifically illiterate female, know about such things? So I showed it to two pragmatic male friends, one an engineer and businessman, and they both said either something got left out of the article or the writer was all wet, and why was CQ publishing such drivel? Their point was that people once thought balloons would be the answer to international transport, etc., too — only everybody failed to realize the problems of an airship with no keel. So the question is, how does a solar lightsail tack, or does it just go in one direction forever (away from the sun)? I'm networking this question, but nobody had a certain answer, and Pat suggested I ask you to ask Eric, which I'm doing because I'm sure there's a sound answer and you don't publish drivel and he would want to know if the article didn't make sense to pragmatic engineers as it was written.

Leslie Vandegrift
Denver, Colorado

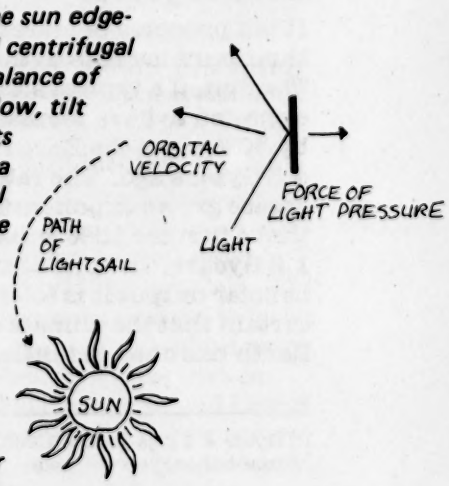
Eric Drexler explains:

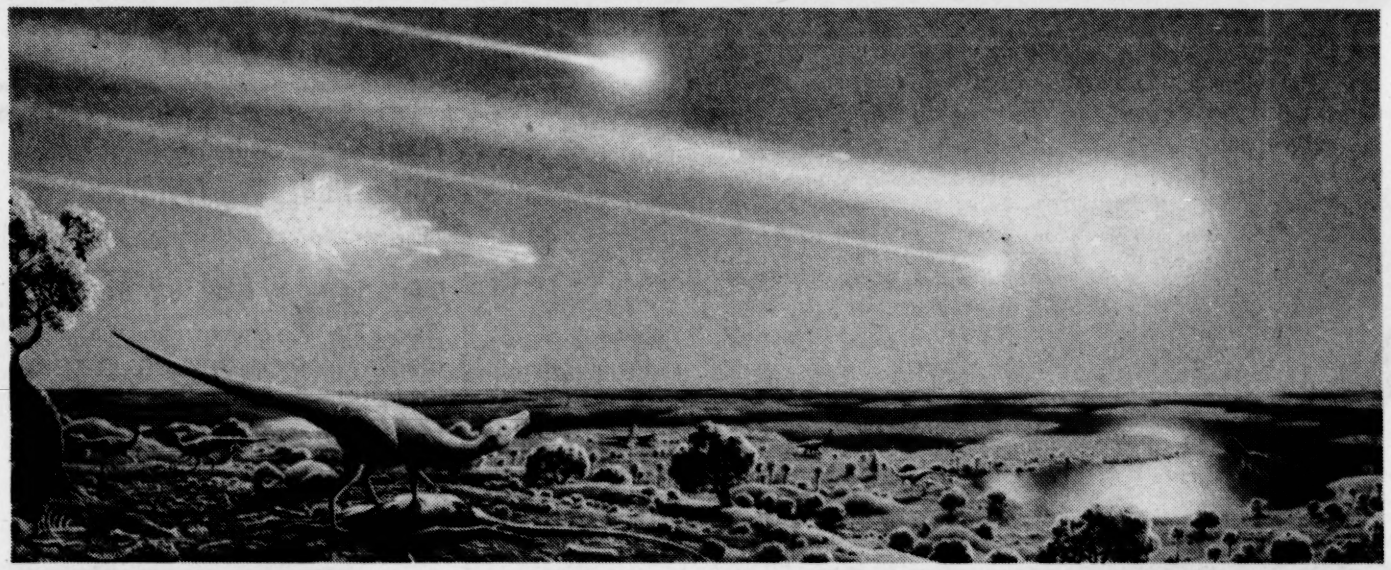
Alas! The hazards of being too close to a subject for too many years . . .

Lightsails can travel from any orbit in the solar system to any other orbit, so long as they don't fry in the sun or plow into an atmosphere. How can they manage this when the pressure of sunlight cannot push them closer to the sun? Simply enough: by letting the sun's gravity pull them. Sailboats use wind and water; lightsails use light and gravity, but somewhat differently.

Sunlight glancing off a reflector produces a force at right angles to the surface. Thus, the direction of the force turns as the sail turns. This force is greatest when the light hits the sail full in the face (pushing it straight away from the sun). The force shrinks to zero as the sail turns edge-on to the sun.

Imagine a sail in orbit around the sun edge-on. Gravity pulls it inward, and centrifugal force pushes it outward. The balance of these forces keeps it in orbit. Now, tilt the sail to catch some light on its forward surface and thus apply a braking force, slowing its orbital speed. The outward force of the light pressure will shift the balance outward a little at first, but the braking force adds up over time, killing speed and letting gravity pull the sail into a closer orbit. Lightsails aren't drivel. NASA's interest is growing. —Eric Drexler

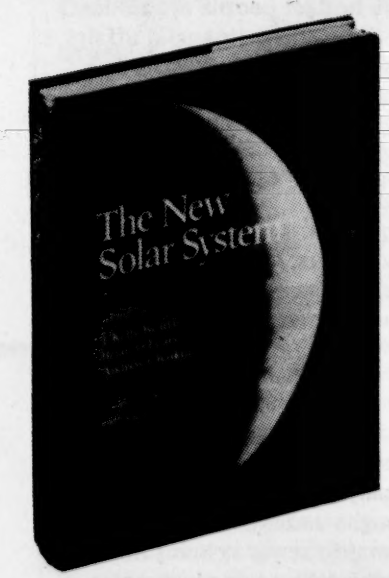




One day, 65 million years ago, a large asteroid perhaps 10 km across may have collided with the Earth. Luis and Walter Alvarez and their colleagues believe the effects of such an impact, described in the text, could have caused the extinction of numerous life forms (including the dinosaurs) at the end of the Cretaceous period. Don Davis has rendered that catastrophic moment, with the flora and fauna shown representative of that time.

The New Solar System

"Extry, extry, readallaboutit, Earth has very peculiar neighbors." This 1981 book is the first to incorporate and somewhat integrate the recent discoveries on Saturn, Jupiter, Mars, etc. We sent robots to those planets for answers to questions that our telescopes taught us how to ask. We got some good answers alright, but every one was accompanied by ten even wilder questions (braided rings around Saturn? Spokes?). This is indeed the "Golden Age of Solar System Exploration," and it's just beginning. —SB



The New Solar System
J. Kelly Beatty,
Brian O'Leary and
Andrew Chaikin
1981; 224 pp.
$19.95 postpaid from:
Cambridge University Press
510 North Avenue
New Rochelle, NY 10801
or Whole Earth
Household Store

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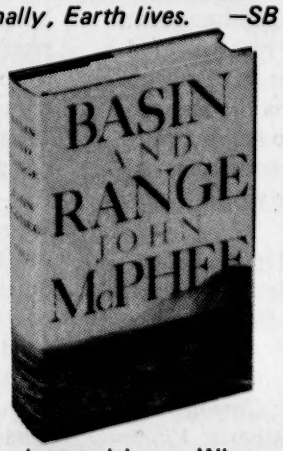
The totality of planetary exploration over the last two decades, summed up in this book, easily justifies, I believe, the appellation The Golden Age of Solar System Exploration. No previous exploratory effort can match it in terms of rate of basic discovery, immediate impact on scientific thinking, eventual significance to society, and rapid communication of the results to the masses of earthly inhabitants.

→

Less than 1 mm wide, a spherule of glass from a lunar sample exhibits a tiny crater in its tip. Note the pattern of radial and concentric fractures, a miniature of that found in craters many kilometers across.

Basin and Range

Here is a book calculated to make you mad for geology, especially American geology, most especially Great Basin geology (and particularly if you read it with **Geology Illustrated, NWEC** *p. 26). I think it is the most skilled science journalism I've read. Finally, Earth lives.* —SB



Basin and Range
John McPhee
1980; 216 pp.
$12.10 postpaid from:
Farrar, Strauss and Giroux
19 Union Square West
New York, NY 10003
or Whole Earth
Household Store

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Geologists on the whole are inconsistent drivers. When a roadcut presents itself, they tend to lurch and weave. To them, the roadcut is a portal, a fragment of a regional story, a proscenium arch that leads their imaginations into the earth and through the surrounding terrain. In the rock itself are the essential clues to the scenes in which the rock began to form — a lake in Wyoming, about as large as Huron; a shallow ocean reaching westward from Washington Crossing; big rivers that rose in Nevada and fell through California to the sea. Unfortunately, highway departments tend to obscure such scenes. They scatter seed wherever they think it will grow. They "hair everything over" — as geologists around the country typically complain.

•

Geologists, in their all but closed conversation, inhabit scenes that no one ever saw, scenes of global sweep, gone and gone again, including seas, mountains, rivers, forests, and archipelagoes of aching beauty rising in volcanic violence to settle down quietly and then forever disappear — *almost* disappear. If some fragment has remained in the crust somewhere and something has lifted the fragment to view, the geologist in his tweed cap goes out with his hammer and his sandwich, his magnifying glass and his imagination, and rebuilds the archipelago.

Real politics in Ridgefield, Washington

Dear Mr. Brand,

Don't fight City Hall. BE City Hall.

If you live in a small town or a county without a large city, the run for office may be an easy stroll.

I have been on the Ridgefield Town Council for two years now, and have just been offered a position on the county's Regional Planning Commission. Several factors make the acquisition of decision-making powers easier than is generally thought.

Many such positions pay little or nothing. Officeholders must have a sense of mission. The pocket-lining associated with public office has become so difficult and so likely to be discovered under post-Watergate rules that it is often not cost-effective. Exit crooks, headed for new games. This helps leave the field open for the honest people.

But many honest people are reluctant to expose their financial affairs to the extent now required by law. Here in Washington we must each year disclose (within certain ranges) our:

- occupation
- earnings and income
- bank accounts, insurance, and investment holdings
- debts and secured obligations

KEITH R. PORTER LIFE ON EARTH

BREWER'S YEAST, *Saccharomyces cerevisiae*, is a fungus that converts sugar into alcohol by the process of fermentation. In this electron micrograph new cells are budding from larger parent cells. —Life on Earth

Humanity: A Bacterial Success Story

by Michael Phillips

WHILE I WAS IN England in a small town, a baker pointed out the structure of the shops around him and commented on the way buildings in the bacteria society 100 years ago were arranged. "Bacteria society"? Yes, bakers depended on their relation with bacteria (yeast), as did brewers, vinegar makers, picklers, dairy people, vintners, and nearly all others who were the primary food providers a century ago in his town.

It is interesting to see that this bacteria society yields some close correlations with perspective to world population growth. World population at the beginning of the agriculture/urban period is estimated at less than 40 million (based on current hunter-gatherer population densities). During the first several millenia of agriculture, until 100 years ago, the population grew slowly and erratically to 600 million.

Agriculture was not in itself the source of this growth; it required that food be transportable, which in turn meant storable. Drying and smoking were two traditional ways of storing, but finding and cultivating friendly bacteria to help make food transportable was the most important. The main friendly bacteria were *Saccharomyces cerevisiae*, *Saccharomyces carlsbergensis, Streptococcus lactis, Lactobaccili* and *propioni*. These along with many others give us beer, wine, vinegar, bread, cheese, yogurt, sauerkraut, pickled olives, and — in Asia — tofu and miso products.

Think about bread! Rye and wheat are consumed primarily in this form. Without friendly bacteria to leaven these grains and make them more palatable, they could only have been dried, ground up, and reconstituted to be served as mush or fried mush. *With* the use of bacteria they become bread and beer, able to move armies across continents, navies across seas, and traders around the world.

During the last several millenia our good relations with a few bacteria have been somewhat offset by others that weren't so friendly, such as *Salmonella typhosa*, typhoid; *Shigella dysenteriae*, dysentery; *Corynebacterium diphteheriae*, diphtheria; *Vibrio commo*, cholera; and scarlet fever, to name a few. In the past 100 years, with the advent of pasteurization in the 1850s and refrigeration in the 1880s, many of the unfriendly ones were brought under control. With two-line water/sewer systems in the 1890s, many others were brought under control. (Two-line water/sewer means water comes in one line and sewage goes out another. Previously a rich person's sewer line might be someone else's fresh water line.)

In recent decades, nearly all unfriendly bacteria have been conquered by some friendly bacteria. Penicillin and some relatives of *Streptomyces griseus* have been put to work in warm vats at pharmaceutical factories to produce the penicillins, streptomycins, and tetracyclines that we call miracle drugs. These friendly bacteria are working day and night producing drugs for us.

We now have almost complete control of bacteria. Thanks to bacteria-defeating refrigeration and inert-gas containers, we have no limits on food shipments to anywhere in the world, and there are almost no bacteria to shorten our lives. World population is adding a billion new people each decade, maybe as a consequence of this co-evolving symbiosis. ■

- offices, directorships, and business interests and relationships
- real-estate transactions and holdings
- compensated lobbying activities
- public-office funds

For a schoolteacher (chemistry, physics) like me, this is merely annoying. For a lawyer it may be impossible to tell all without exposing legitimately confidential information *and* some sweet deals. Exit lawyers, grumbling.

Some local businesspeople I've talked with are *afraid* to hold office: they would have to make unpopular decisions. Boycott follows. Exit businesspeople.

Of the citizens remaining, very few have the time, talent, and willingness to serve. Most elections here in Clark County are uncontested. Not a large majority, but most.

But before you rush down to the county courthouse to register, ask yourself how you feel about dog control. Fence height restrictions. Police pay. Flood-control plans. Six-year street-improvement plans. Parks. Parades. Business-license fees. Water and sewer fees. License fees for spayed dogs owned by disabled senior citizens. . . .

The airport they want to put in your backyard may be what brings you into politics, but you will be responsible (heavy word, that) for all of the above and sooooo much more!

But if you care enough and are effective enough to get organized and pressure an official, you may be just the person to *become* the official in the next election. By the time that you learn of the *next* issue (subdivision, dirty industry, antidancing ordinance), it will be too late. The time to get into a power position is now.

Yours,

Tom Parsons
Ridgefield, Washington

P.S. I could go on for several thousand words about the day-to-day of dealing with the fire department, city staff, neighbors, and the incredible wealth of unsuspected problems that goes with the office. When the town cop's dog bites your kid. . . . But I'd need a word of encouragement before embarking. Don't know if you plan much more coverage in this line.

Yes please. —*SB*

Real politics in Switzerland

Dear **CQ**:

Speaking of Stable Societies . . .

Robin Clarke's article on Guernsey (Summer '81 **CQ**) reminded me of some of the observations I made of Switzerland on a recent visit there. Switzerland is also a small, straight, well-run, common-sense-based, self-sufficient nation. It's no accident at all that the streets of Zurich are paved with invested gold, or that the Swiss franc is a monetary standard, or that a Swiss bank account is a favored $$$ stash.

The Swiss long ago moved into an uncompromising area of high mountains, short summer growing season and extremely cold winter temperatures, and learned to make a success of living there. They do it by using every available resource the area provides to its maximum and absolutely without fail. The extent of this was impressed upon me the very first day of my visit. It was the end of summer, and some young men from the community were cutting down the tall autumn grasses from the neighborhood lawns. My host explained that they were collecting all these for the community cattle feed supply. Imagine: the cows of all the individual owners of the community are fed through the winter from a grass/hay supply to which the lawns, fields and empty lots of all must contribute (city dwellers, doctors, lawyers, shoe salesmen). It is recognized that all the other professions depend on the basic dairy industry for an economic base, and collecting feed for the cattle from every possible local source keeps money from going out of the country to buy foreign-grown feed.

The Swiss have made an art of stability: they could continue on in their little corner of the world quite stably for the next few hundred years with no problems. No resource goes to waste. Forests and meadows are held communally and are carefully manicured; dead wood is continually cut out and used. Switzerland has no colonies as far as I know; instead of going out hunting new resources when they had made use of all the land could offer for cattle-raising, etc., they started skilled artisanry (watchmaking and the like). The Swiss have one of the lowest unemployment rates in the world, little violent crime, strong trade guilds, and citizens who still vote by raising their hands in the public square. They have not been in a war since 1798, when they were invaded during the French revolution. Yes, this is the way to run a civilization.

On the other hand, there is almost no chance for change, no margin for madness. You graduate from school in a definite profession, join a trade guild, hang out with other doctors or lawyers or whatever, and toe the line: show up for work every day, on time, without fail, and don't make waves. When my American dentist friend and his wife got caught at the end of their vacation in the outbreak of the Turkish-Greek conflict, they drove all night to get back to Switzerland in time for him not to be late for work, because "you just don't do that in Switzerland." Drinking is a national pastime and obsession. The Swiss drink at lunch, at breaks, after work, etc. They often go back to work quite sloshed.

The cost of stability is a rigidly structured social system. There are a finite number of professional slots; entrepreneurship is discouraged and the Swiss hesitate to try anything too new. (Some other young people who decided to try to open a crepe restaurant in my friends' town were decidedly nervous about whether such an "avant garde" idea would go over.) My friends wanted to fix up the plumbing and wiring in the house they bought in the good old American "do it yourself" tradition; they discovered there was no retail outlet for the supplies they needed. Everyone simply hires a professional to do the job completely and right. Second professions or hobbies that develop into businesses are unheard of.

Switzerland is also a closed society. Only enough new people are allowed into the country to fill jobs not taken by native Swiss. Foreigners absolutely must have a guaranteed job before they are allowed to take up residence; members of the city or village where you want to live vote whether you will be allowed to stay in their community. If my friends visit another city in Switzerland, they must notify the local police. (This probably also helps protect them from house break-ins though.)

Personally I think it is good to have places like Switzerland, whatever their seemingly inherent drawbacks, where those people can go who do want to live in the ultimate stable economy. Evidently the older Swiss think their stability is worth its cost; they have made a conscious choice to continue to have things as they are. On the other hand, the Swiss young people I met were disdainful of the set-up, disgusted with the staidness and stagnancy, and delighted by the innovations of American culture.

Judith Goldsmith
Berkeley, California

ROCKY FLATS NUCLEAR WEAPONS FACILITIES PROJECT

Stopping the Unthinkable

by Alia Johnson

Meanwhile, back at the peace movement, there really is *a peace movement, and it's getting bigger. Many people are deciding it's time to stop crouching under our desks in '50s grade school fashion to hide from the bomb, and time to start doing something.*

But doing what, and where, and with whom? Nobody knows the *thing to do or we wouldn't be in the fix we're in, but lots of groups are trying lots of new and old and good things. In this article, Alia Johnson offers the possible activist (that's you and me) a guide to the organizations and ideas and ironies involved in making more peace.*

Alia Johnson lives in Washington State and writes about peace while her two sons (2 and 4) say, "Don't work, Mommy. Play with me!" Alia became involved in peace work in 1979 when she and her husband, Bob Fuller, and 1½ year old son Noah traveled for several months across Russia talking with Russians about the arms race. (Bob reported on that trip in "Our Enemies, Ourselves" in the Spring 1980 CQ.) I asked Alia what they and the Russians said to each other and she said, "We talked about the obvious fact that none of the people want to do this and we're doing it and the mystery of that." It's the mystery of our time. Here are some clues to the solution.

—Anne Herbert

The opponents of nuclear war

"Let's stop hurting each other. You go first." (the poet Alta). This approach doesn't work any better in international relations than it does in personal ones. The United States will probably have to "go first" in the de-escalation of the arms race, because:

1) The influence of public opinion is greater here; the flow of information between government, citizens, and media is relatively open here compared with the U.S.S.R.;

2) The U.S.S.R. government is too poor, too threatened by what it perceives as the military superiority of its opponents, too harassed by internal economic problems, and too plagued by such external ones as Afghanistan and Poland to have attention for a reduction in the arms race;

3) We started it, and we're ahead. Nearly every advance in nuclear weaponry was first designed at Los Alamos or Livermore. Chart 1 shows how the U.S. has led the arms race:

CHART 1

IN THE NUCLEAR COMPETITION

The dynamics of the nuclear arms race ensure that development of a new weapons system by one power will in a relatively brief period be followed by a comparable achievement by the other. Both powers have had "firsts." Neither has stayed ahead for long. The US generally has a technological lead of several years, but the futility of the race for short-term advantage is demonstrated by a chronology of developments to date.

ACTION **REACTION**

ATOMIC BOMB

US 1945 — 1949 USSR

The nuclear age began with the explosion of a US A-bomb of 12.5 kilotons (equivalent to 12,500 tons of TNT) over Hiroshima, Japan. The single bomb, which destroyed the city, introduced to the world a concentrated explosive force of unprecedented power. Within four years, the USSR conducted its first atomic test.

INTERCONTINENTAL BOMBER

US 1948 — 1955 USSR

By 1948, the US had begun to replace the propeller planes of World War II with long-range jets. The first planes developed for strategic (intercontinental) bombing required refueling to reach another continent. In 1955, the US began deployment of the all-jet intercontinental bomber, and USSR soon followed suit.

HYDROGEN BOMB

US 1954 — 1955 USSR

The H-bomb multiplied the explosive force of the A-bomb 1,000 times. The first US thermonuclear bomb had a yield equivalent to 15,000,000 tons of TNT; a year later the USSR tested a bomb in the million-ton range.

INTERCONTINENTAL BALLISTIC MISSILE (ICBM)

USSR 1957 — 1958 US

Following intensive development by both nuclear powers, a land-based missile to carry nuclear warheads intercontinental distances was successfully flight-tested by the USSR in 1957, and by the US a year later. By 1962 both nations had ICBM's with a range of 6,000 miles, each missile able to carry a payload equivalent to 5-10,000,000 tons of TNT.

MAN-MADE SATELLITE IN ORBIT

USSR 1957 — 1958 US

Sputnik I by the USSR initiated a space race which quickly took on military functions; the first US satellite was launched into orbit the following year. Through 1979 more than half the superpowers' satellites have been military: for surveillance, targeting, etc.

SUBMARINE-LAUNCHED BALLISTIC MISSILE (SLBM)

US 1960 — 1968 USSR

A nuclear-powered submarine which could fire long-range missiles from a submerged position was the third means of strategic delivery. The US produced the nuclear-powered Polaris, with missiles with a range of 1,200 nautical miles. Eight years later the USSR had comparable nuclear subs.

MULTIPLE WARHEAD (MRV)

US 1966 — 1968 USSR

Multiheaded missiles increased the number of targets a missile could hit. US MRV'd missiles carried three warheads, each with sixteen times the explosive force of the Hiroshima bomb. The USSR had them two years later.

ANTI-BALLISTIC MISSILE (ABM)

USSR 1968 — 1972 US

The USSR deployed 64 defensive missiles around Moscow. The US began construction of the Safeguard system in 1969 and had one site completed when a treaty restricting ABM's was signed in 1972. Generally judged militarily ineffective, ABM's were restricted to one site in each country in 1974. Subsequently the US site was closed.

MULTIPLE INDEPENDENTLY-TARGETED WARHEAD (MIRV)

US 1970 — 1975 USSR

Further development of multiple warheads enabled one missile to hit three to ten individually selected targets as far apart as 100 miles. USSR began to flight-test MIRV's three years after US put them in service; in 1976 USSR deployed the six-headed SS-19.

NEW LONG-RANGE CRUISE MISSILE

US 198? — 198?USSR

Adaptable to launching from air, sea, and land, a new generation of long-range missiles is under development. The cruise missile is small, relatively inexpensive, highly accurate, with the unique advantage of very low trajectory. Following the contours of the earth, and flying under radar, it will be able to destroy its target without warning. The US is in the lead in this technology.

World Military and Social Expenditures 1979

My research suggests that now, in the summer of 1981, every week a thousand people in the United States are becoming newly involved in efforts to deal with the arms race.

Most of the peace groups in the United States — and lots of other organizations as well — are part of a campaign called "The Call to Halt the Nuclear Arms Race." The Call advocates a bilateral freeze on the testing and production of nuclear weapons and suggests some unilateral steps that might be taken with little or no net risk:

Either the United States or the Soviet Union could initiate movement toward the freeze by taking modest, unilateral steps that would: demonstrate its good faith, start movement in the right direction, and make it easier for the other country to take a similar step.

For example, either country could:

1. Undertake a three month moratorium on nuclear test explosions, to be extended if reciprocated;
2. Announce that military spending in the next fiscal year will not exceed that of the current year, and agree to provide evidence of compliance to the U.N. Centre for Disarmament;
3. Stop further deployment, for a specified period, of one new strategic weapon or improvement of an existing weapon.

Hundreds of groups and individuals are sending petitions to Washington endorsing the Call; the effort is currently a point of unification for the peace movement and is serving as a vehicle for local education and organization as well as a communication to government at the national level. Local delegations, for example, are visiting their Congresspersons asking for endorsement of the Call. If the United States were to take such actions as suggested in the Call, and if the Soviet Union were to respond in kind, perhaps we could wake up from this nightmare and begin the sobering process of finding alternatives to war.

The listing that follows is the tip of an iceberg.

My research suggests that now, in the summer of 1981, every week a thousand people in the United States are becoming newly involved in efforts to deal with the arms race.

In Europe and England the peace movement is accelerating as people realize that they don't want NATO's nuclear weapons in their neighborhoods.

The organizations I'm listing here have many local chapters in the United States, and most have extensive international connections. Some of the local groups are lively, some are dull. If you want to get involved with their work, it is best not just to show up saying, "Uh, what do I do?" If you can, offer your own talents, resources, projects, and connections, and ask for their support and direction. *Remember that none of these groups has figured out how to prevent nuclear war.* Anne Herbert said that when she saw a television story about the creation of the atomic bomb, it seemed a "miracle of group effort that the bomb got made," and she thought that it would take another miracle of group effort, with a much bigger group, to stop its use.

These people are part of that group and, I hope, of that miracle.

(Note: Each of these groups will send information free. Unless noted otherwise, membership is free; but an $8-$10 donation is often requested.)

THE OLD GUARD

Among the groups working on the issue of nuclear war, I find myself most attracted to the "old guard" peace organizations. Why? I think because there is a deeper sense of history and therefore perspective in these groups; because "war or peace" is more fundamental than "nukes or no nukes"; and because of the sense of continuity and community among them. A person at the War Resisters League said of the "old guard" community, "Historically, when things are in a lull between wars, we *are* the movement. When the movement grows — and it's mushrooming now — we're *part* of the movement, providing experience and resources." Because they've been around for a while, their work is based more on commitment or faith than on hope or optimism, so they're better equipped for the long haul. Also I think that the practice of nonviolence these groups subscribe to makes people saner, more disciplined, and ironically, more courageous. The religious orientation of the first two groups, AFSC and FOR (as well as

When your premise is "Thou shalt not kill," you can skip a lot of boring and distracting discussions, and just get to work.

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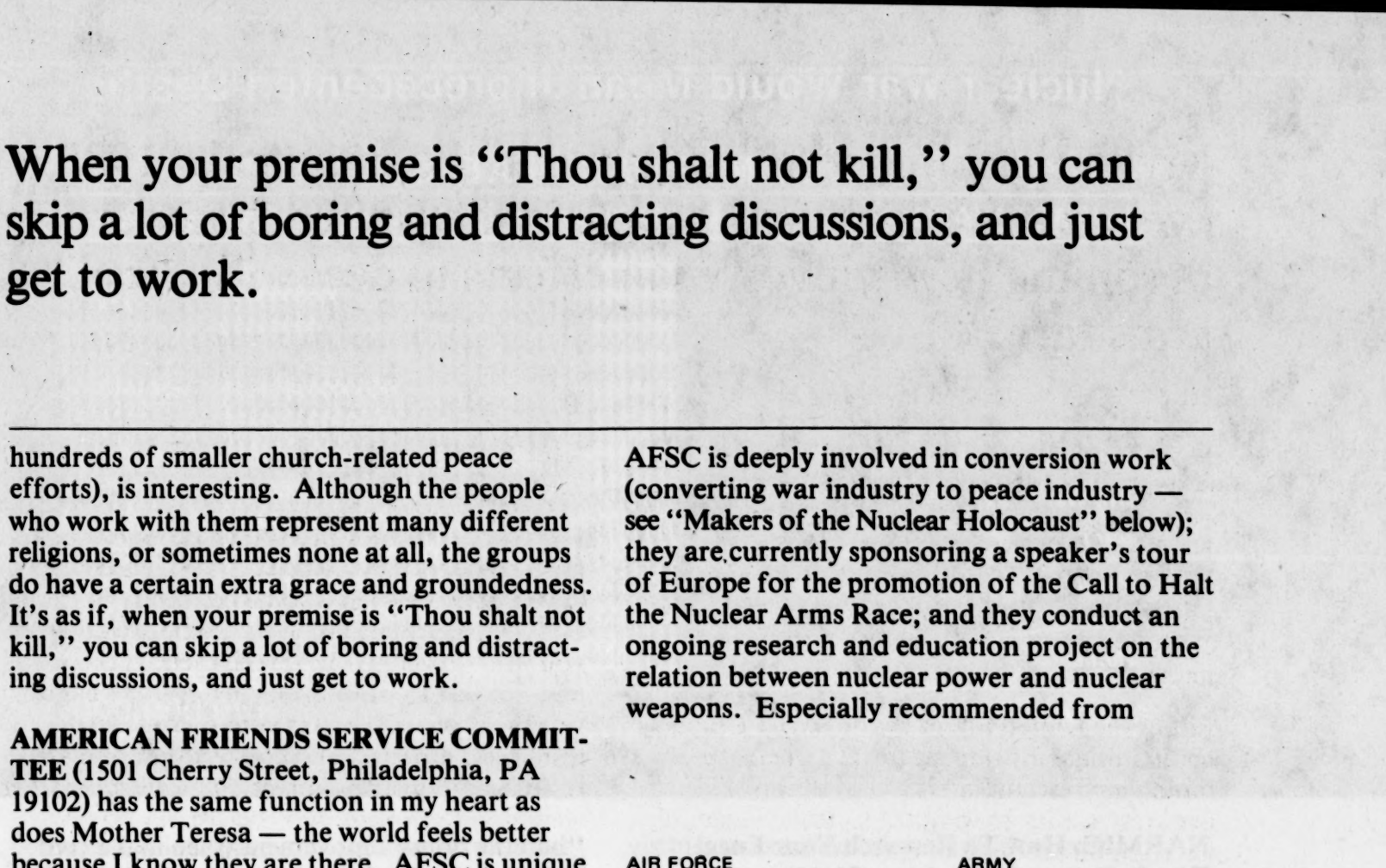
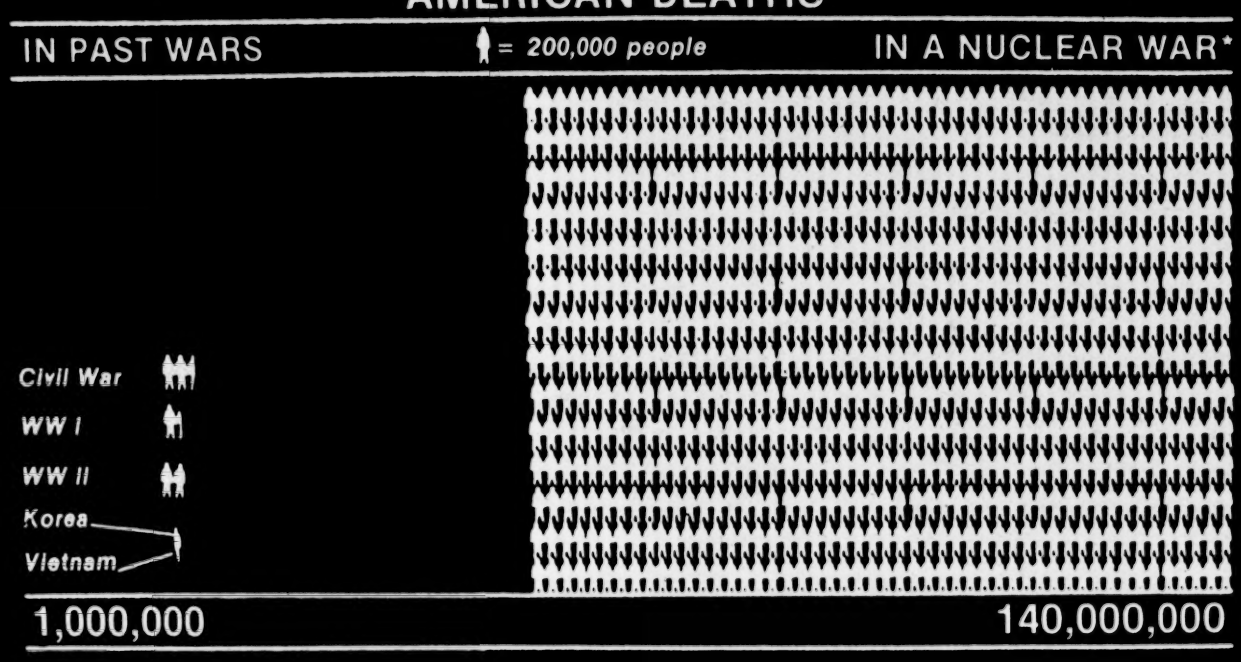
hundreds of smaller church-related peace efforts), is interesting. Although the people who work with them represent many different religions, or sometimes none at all, the groups do have a certain extra grace and groundedness. It's as if, when your premise is "Thou shalt not kill," you can skip a lot of boring and distracting discussions, and just get to work.

AMERICAN FRIENDS SERVICE COMMITTEE (1501 Cherry Street, Philadelphia, PA 19102) has the same function in my heart as does Mother Teresa — the world feels better because I know they are there. AFSC is unique among organizations working on peace issues in that they are solidly funded and have a large and stable paid staff. AFSC's project called "National Action/Research on the Military Industrial Complex" (NARMIC) has excellent and extensive information resources — books, pamphlets, slide shows, films, and a speaker service. They made this map:

AFSC is deeply involved in conversion work (converting war industry to peace industry — see "Makers of the Nuclear Holocaust" below); they are currently sponsoring a speaker's tour of Europe for the promotion of the Call to Halt the Nuclear Arms Race; and they conduct an ongoing research and education project on the relation between nuclear power and nuclear weapons. Especially recommended from





NARMIC: **How To Research Your Local War Industry**, (1979, 4 pp., $1.35 postpaid). You can write for information about activities in your area, or check your local phone book for an AFSC office.

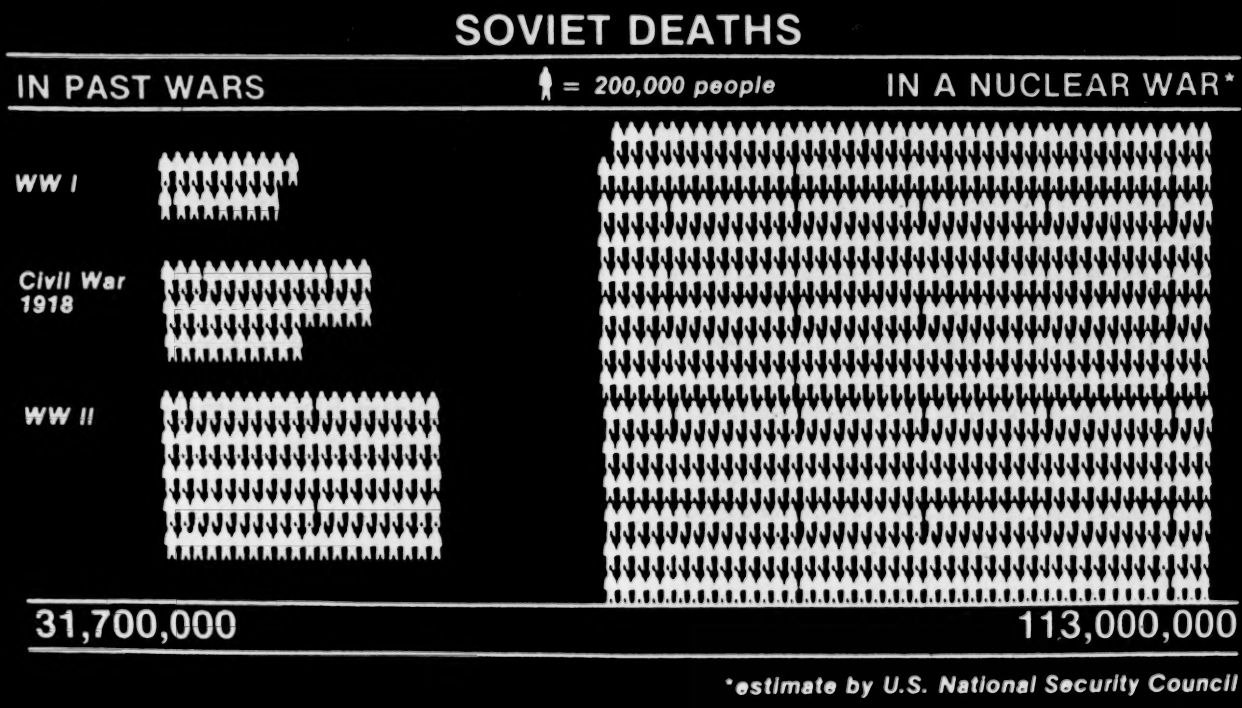
FELLOWSHIP OF RECONCILIATION (FOR) (Box 271, Nyack, NY 10960) has 55 local groups in the United States; international FOR has affiliates in 30 countries. This group, like AFSC, has what I would call a "holistic peace program." They are part of a long tradition of peace work: they do draft counselling in many countries, including the U.S.; they provide alternative service for conscientious objectors in some nations; they act as mediators in India between "underground rebels" and the government; in the Netherlands FOR affiliates are involved with the efforts to keep NATO nuclear weapons out of Holland.

One of the nicest moments of my research on this article was when Dan Ebener in the national FOR office said to me, "If I knew there was going to be a nuclear war tomorrow, I'd plant an apple tree today." Available from them: "Peace Diary," a calendar which includes a listing of 1600 peace organizations and periodicals in over 100 countries, with a brief description of their work (Annual; 256 pp.; $5.50 postpaid). You can write FOR for their book and literature lists and for the address of the chapter nearest you.

The **WAR RESISTERS LEAGUE** (339 Lafayette Street, New York, NY 10012 or 85 Carl Street, San Francisco, CA 94117) is another of the old organizations (dating from 1915) who were active in the two world wars, the 1960's "ban the bomb" movement, then in the civil rights activities which somewhat displaced it, then in the Vietnam demonstrations, during which they were part of making "civil disobedience" and "nonviolence" household words. Now, they have a "counter-recruitment program" in opposition to the draft and supporting draft resisters; they train people to conduct nonviolent demonstrations; they're sponsoring programs on "feminism and nonviolence"; they organize and help others organize demonstrations against the arms race. WRL has rich information resources, including a War Tax Resistance Kit (1981; $3 postpaid) and a brochure about war tax resistance for free.

WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM (1213 Race Street, Philadelphia, PA 19107) has 26 sections all over the world. Annual membership is $5-$25. It too began in World War I and is largely a great group of little old ladies who refer to each other as "balls of fire." They worked on the test ban treaty and are now working on issues concerning women and the federal budget and providing input for federal budget conferences through various women's organizations. Don't you wish *your* mother was working for peace?

WOMEN STRIKE FOR PEACE (145 South 13th Street, Philadelphia, PA 19107) worked on the test ban treaty in the 1960's, grabbing (with white-gloved respectable hands) the lapels of Congressmen on the steps of the Capitol demanding their support of the treaty, and going to jail for it. These women had the chutzpa to sue the CIA for infiltrating them and conducting illegal surveillance — and won! They received a cash settlement. Now they're



preparing delegations and demonstrations for the 1982 United Nations special session on disarmament.

NEW GROUPS

There are many, many organizations I'm not including here. An excellent list of them can be had from the Coalition for a New Foreign and Military Policy, 120 Maryland Avenue N.E., Washington, D.C. 20002. Send $ .25 for their "Disarmament Action Guide"; its list of organizations includes many arms control groups, lobbying groups, and church-related ones, as well as the ones I cover here.

MOBILIZATION FOR SURVIVAL (3601 Locust Walk, Philadelphia, PA 19104) is what's called a "multi-issue" organization, whose goals are "zero nuclear weapons, no nuclear power, stop the arms race, fund human needs." It's a coalition of a broad base of groups who emphasize grass-roots organizations and meet once a year to decide what specific goals they will pursue in cooperation. There are Mobilization for Survival offices in most large cities, and most independent anti-nuclear groups affiliate with them. They coordinate the organization of big demonstrations as well as provide their affiliates with resources for community organizing and education. The Mobilization has a list of 1,000 "key contacts." Even if you live in the boondocks, they can probably help you to contact a gentle or radical soul close by.

PHYSICIANS FOR SOCIAL RESPONSIBILITY (FSR) (POB 144, Watertown, MA 02172) is the group currently becoming most visible and successful at attracting media attention to the issue of nuclear war. Annual membership is $5-$30. It was started by Dr. Helen Caldicott and is fired, as is her other group, the Women's Party for Survival (56 North Beacon Street, Watertown, MA 02172), with a kind of Joan of Arc energy. Many people are inspired by Helen's work; some are depressed by it, especially by the PSR conferences. I was, enough to write this letter to Helen about it, which I repeat here because her work is one of the most potent outreach efforts going and because the criticisms I state about the PSR conference could be said about many other parts of the peace movement and the arms control community.

July 1, 1981

Dear Helen,

When I got home from the Seattle PSR conference, I was depressed, sick and despairing. The conference made me want to quit working on the issue of nuclear war.

I'd like to tell you why I think that happened and to make some suggestions. You and PSR have done a terrific job of bringing the issue of nuclear war to the attention of your profession, the media, and thus the public. My suggestions have to do with how you might better serve the conferees themselves.

First, the conference is structured in such a way as to increase emotional distancing and to increase fear. This has got to lead to a decrease in sanity. Specifically, the speakers (all men) were introduced by

you, walked to the podium and talked about horrible things; then people would clap, and you would stand up and introduce the next speaker. When my heart is in spasms from seeing pictures of burned babies, I don't want to hear where John Kenneth Galbraith went to school! I know that there exist people who know how to facilitate a kindlier process of leading groups of people through such frightening territory, and I wish that one of them would help design the PSR conferences.

Second, much of the tone of the conference involves blaming. Blaming discourages people from taking responsibility for problems.

Third, too much time is spent having people stand up and describe in detail the blast effects for a given area and the medical problems that would result from the blast, the fires, and the radioactivity. This part could be done much more briefly, with more detailed information available in writing. Then more time would be available to think about what we might do to prevent nuclear war. You could try, for example, instead of having the audience send up questions so that the experts might further hold forth, asking people to write down what they think or feel about the problem, and then reading these to the audience.

I know you are constrained by the very large audiences — 1200 in Seattle — and by the necessity to qualify as medical education for the students who get credit for attending the conferences.

But I think it is important to address these concerns because it is these very phenomena of emotional distancing, too much reliance on "experts", and the resulting over-technicalization of the problem, that form what you could call the semantic base of the arms race itself.

Sincerely,
Alia Johnson

CONVERSION PROJECTS

AFSC and FOR publish jointly **Makers of the Nuclear Holocaust** (A Guide to the Nuclear Weapons Complex and Citizen Action), edited by Sam Day (1981, 2nd Edition, 24 pp.; $1.50 postpaid from AFSC, Rocky Flats/Nuclear Weapons Facilities Project, 1660 Lafayette, Denver, CO 80218). This booklet provides an excellent overview of nuclear weapons activities in the U.S. with good information on conversion projects. Conversion projects are locally oriented efforts to assess and publicize the potential for converting weapons-related jobs to jobs in civilian industry. (The same kind of work is going on around nuclear power plants, with increasing cooperation from unions.) A few years of effort at Rocky Flats near Denver, for instance, has resulted in a dramatic increase in public awareness of the warhead production plant and some intriguing data on the possibility of economic conversion of the jobs. Governor Lamm has supported conversion of the plant; over 50% of the Denver populace approached in door-to-door petition campaigns support conversion. Also virtually all the local health bigwigs have come to oppose the plant's presence. **Makers of the Nuclear Holocaust** contains this list of groups which organize local communities to deal with specific weapons research, design, manufacturing, testing, transportation, and deployment activities:

WEAPONS RESEARCH, DESIGN, MANUFACTURING AND PROCESSING

Livermore Lab

University of California
Nuclear Weapons
Labs Conversion Project
944 Market Street
San Francisco, CA 94102

Hanford

Hanford Conversion
Project/CALC
1414 Kincaid
Eugene, OR 97401

Savannah River Plant

Palmetto Alliance
2135½ Divine Street
Columbia, SC 29205

Savannah River Project
630 Shell Street
West Columbia, SC 29169

Grass Roots Organizing
Workshop
18 Bluff Road
Columbia, SC 29201

Rocky Flats

American Friends Service
Committee/Rocky Flats
Project
1660 Lafayette Street,
Suite D
Denver, CO 80218

Rocky Flats Coalition
1315 Broadway #1
Boulder, CO 80302

Kansas City Plant

Bendix Conversion Project
811 East 47th Street
Kansas City, MO 64110

Mound Laboratory

Monsanto Conversion
Project/American Friends
Service Committee
915 Salem Avenue
Dayton, OH 45406

Canoga Park

Bridge The Gap
10915 Strathmore Drive
Los Angeles, CA 90024

Pinellas Plant

Pinellas Conversion
Project
242 10th Avenue NE
St. Petersburg, FL 33701

Idaho National Engineering Lab

Snake River Alliance
P.O. Box 1731
Boise, ID 83701

Nuclear Counterbalance
P.O. Box 100
Pocatello, ID 83201

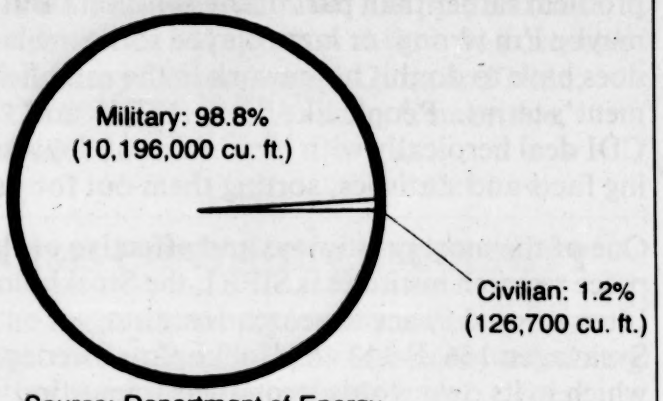
Los Alamos and Sandia Labs

New Mexico Peace
Conversion Project
2405 Meadow Road SW
Albuquerque, NM 87105

Pantex

Panhandle Environmental
Awareness Committee
1008 South Madison
Amarillo, TX 79101

99% of U.S. High-Level Radioactive Wastes Have Come From Military Activities



Source: Department of Energy

Reprinted from *The Defense Monitor*, 1981

MAKERS OF THE NUCLEAR HOLOCAUST

TESTING

Citizens Call
1321 East 400 South
Salt Lake City,UT 84102
and
126 South 1400 West
Cedar City, UT 84720

Sagebrush Alliance
704 West McWilliams Avenue
Las Vegas, NV 89105

Nevada Test Site Radiation Victims Association
P.O. Box 18414-192
Las Vegas, NV 89114

TRANSPORTATION

Nuclear Cargo Project
92 Piedmont Avenue SE
Atlanta, GA 30303

Nuclear Cargo Task Force
1006 Amidon
Wichita, KS 67203

WEAPONS DEPLOYMENT

General

Nuclear Free Hawaii
1918 University Avenue
Honolulu, HI 96822

Ian Lind
American Friends Service Committee
2426 Oahu Avenue
Honolulu, HI 96822

Navy

Seal Beach Naval Affinity Group
P.O. Box 14402
Long Beach, CA 90814

Concord Naval Weapons Station Group
65 Eckley Lane
Walnut Creek, CA 94598

Air Force

Omaha Pax Christi
2104 Davenport Street
Omaha, NE 68102

Nebraskans for Peace
430 South 16th Street
Lincoln, NE 68508

AF/Missiles

Ella McDonald
9 Diane Drive
Little Rock, AR 72205

WEAPONS SYSTEMS

Trident Submarine

Live Without Trident
79 Yesler Way
Seattle, WA 98104

Pacific Life Community
331 17th East
Seattle, WA 90811

Trident Conversion Campaign/American Friends Service Committee
RD 1, Box 494
Voluntown, CT 06384

St. Louis Economic Conversion Project (General Dynamics)
P.O. Box 1693
St. Louis, MO 63188

People for a Nuclear Free Future
7915 Empire Grade
Santa Cruz, CA 95060
and
P.O. Box 2324
Santa Cruz, CA 95063

Electric Boat Trade Unions for Democratic Action
P.O. Box 294, Boro Sta.
Groton, CT 06340

Knolls Action Coalition
41 State Street, Room 505
Albany, NY 12207

Dorothy Day Community
P.O. Box 1093
Norwich, CT 06360

Stop ELF Committee
RR2, Box 166Q
Ashland, WI 54806

MX Missile (deployment and manufacturing)

MX Information Coalition
232½ University Street
Salt Lake City, UT 84102

Orange County Peace Conversion Project
331 N. Olive Street
Orange, CA 92666

San Fernando Alliance for Survival (also Canoga Park)
13615 Victory Blvd.
Van Nuys, CA 91401

Great Basin MX Alliance
P.O. Box 27
Baker, NV 89311

Rockwell/MX Conversion Project
125 West Third
Tulsa, OK 74103

Southern California CALC
P.O. Box 32305
Los Angeles, CA 90032

Cruise Missile

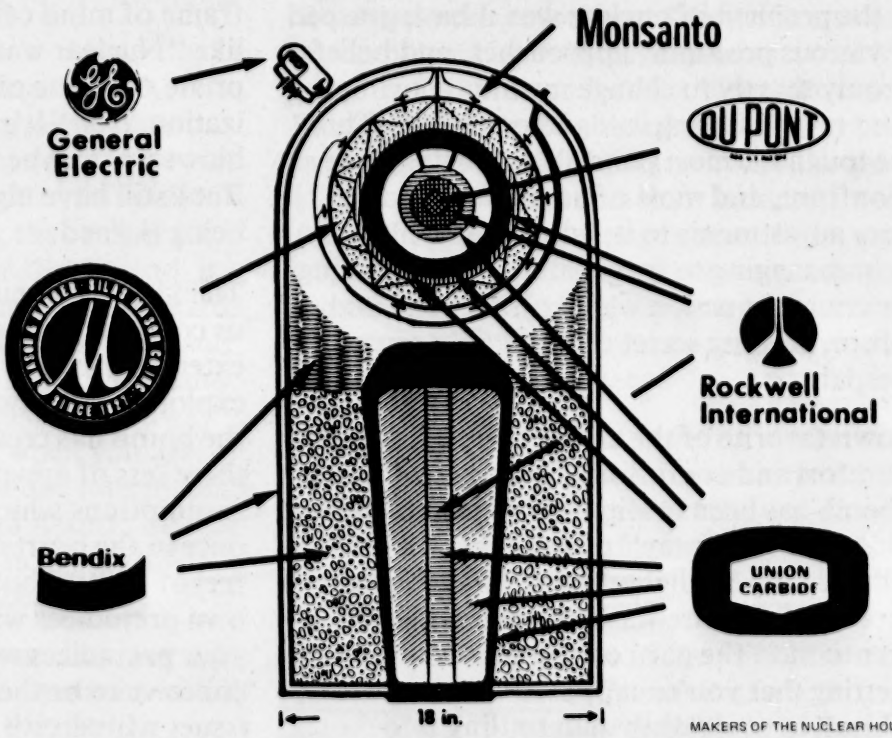
Cruise Control Project/ American Friends Service Committee
821 Euclid Avenue
Syracuse, NY 13210
and
141 Chafee Avenue
Syracuse, NY 13207

GENERAL CONVERSION

WILPF Nuclear Network
255 Grove Street
White Plains, NY 10601

Mid-Peninsula Conversion Project
867 W. Data #203
Mountain View, CA 94041

THE H-BOMB, INC.



MAKERS OF THE NUCLEAR HOLOCAUST

THINK TANKS

Besides all these people there are scores of "think tanks" and peace research institutes mapping the nuclear mine fields in international affairs, analyzing the defense budget, and keeping track of the arms race (see Center for Defense Information [CDI], which publishes the **Defense Monitor**, **NWEC** p. 381). One of the most successful such efforts lately is the Council on Economic Priorities (**NWEC** p. 386), whose recent report on what they kindly (if barely) refrain from calling corruption in the U.S. defense contracting business is gaining broad national publicity. The report is **The Iron Triangle** (The Politics of Defense Contracting) by Dr. Gordon Adams; 1981, 470 pp.; $15 postpaid from the Council on Economic Priorities, 84 Fifth Avenue, New York, NY 10011. It's hard for me to actually read materials from the likes of CEP; highly technical, abstract material usually seems to me like part of the problem rather than part of the solution. But maybe I'm wrong, or lazy: maybe someone does have to do this homework in the establishment's terms. People like those at CEP and CDI deal heroically with mountains of depressing facts and statistics, sorting them out for us.

One of the most prestigious and effective of the peace research institutes is SIPRI, the Stockholm International Peace Research Institute, Sveavagen 166, S-113 46, Stockholm, Sweden, which in its own words "conducts scientific research on questions which are important for international peace and security." Their exten-

Thinking about nuclear war for very long makes us confront a lot of paradoxes, internal and external conflicts and mysteries.

Looking at War from Both Sides Now

IN MY PURSUIT OF THE ANSWER TO the problem of nuclear war, I have grasped various positions, approaches, and beliefs, only shortly to change my mind or simply to find myself feeling lost and confused. This is *the* toughest, most painful, confusing issue we confront, and most of us end up making uneasy adjustments to it, adjustments like almost managing to forget about it or pursuing some course of action which offers hope and idealism, keeping secret our midnight sense of despair.

My own favorite of the escape routes from the discomfort and confusion of worrying about the bomb has been to slip into the comfortable "It's All One, anyway" posture, an attitude I call "premature enlightenment" — blissing out before the dishes are washed, taking a helicopter to meet the guru on top of the mountain, forgetting that you're supposed to take the Bodhisattva vow rather than settling into nirvana. With respect to nuclear war, this frame of mind can take the form of statements like "Nuclear war would be simply the appropriate outcome of the insanity of Western civilization," or "It's all right with God if the world blows up, maybe the mutants will do better." But I still have nightmares about my children being burned.

Thinking about nuclear war for very long makes us confront a lot of paradoxes, internal and external conflicts and mysteries. In the spirit of exploring the new philosophical wilderness that the bomb has created for us, I present here three sets of apparently conflicting attitudes or assumptions which, when contained both at once in the heart and mind of a person, have the feel of painful but illuminating paradoxes. My own prejudices will be apparent here; perhaps your prejudices will balance them. What I conceive to be the "minority voice" on these issues will receive the fuller exposition.

sive body of books and reports can provide anyone with a thorough understanding of the arms race and of the international political situation. The most current publication is the **SIPRI Yearbook** (annual; 530 pp.; $50 postpaid) and an information sheet is $1 postpaid; both from Oelgeschlager, Gunn and Hain, 1278 Massachusetts Avenue, Cambridge, MA 02138.

ARMS CONTROL COMMUNITY

The realm of activity loosely called the "arms control community" has been involved among other things with promoting SALT. These more establishment types include such organization as the Council for a Livable World (100 Maryland Avenue, N.E., Washington, D.C. 20002), who lobby Congress on arms control and military budget issues. Another Washington organization, The Committee on East-West Accord (227 Massachusetts Avenue N.E., Washington, D.C. 20002), is doing excellent, creative work to encourage more open communication with the U.S.S.R. (One of their backers wants to sell Pepsi to the Russians. If it prevents nuclear war, I'm for it.)

This article cannot do justice to the whole range of disarmament, arms control, peace research, lobbying, and "world order" efforts. Perhaps some other **CQ** reader can sort out these areas. Finally, here are some contacts through which you can learn about the activities of the peace movement in other countries:

My own favorite of the escape routes from the discomfort and confusion of worrying about the bomb has been to slip into the comfortable "It's All One, anyway" posture, an attitude I call "premature enlightenment" — blissing out before the dishes are washed.

First:

Nuclear war would be wrong: All-out nuclear war could (may this be the last time I ever see this phrase) "end civilization as we know it." It would cause immense suffering. It would be wrong because the planet and its creatures are sacred; they don't belong to us and we have no right to destroy them. Destroying ourselves would be wrong because we are part of some very large and long Something whose meaning and purpose we do not know.

Nuclear war would be okay, or good: The "It would be okay with God" argument. The wonderful Buddhist sense of history, in which, according to the Dalai Lama, "If you speak about the period of one Aeon, then our era is still childhood, but within a smaller period, it is old. . . . If you dig down one thousand yards into the earth and then dig around one thousand square yards and then fill this space with hairs a half inch long each; if you then throw away one hair every hundred years; when you are done, that will be the length of one intermediate aeon — one of the eighty (in an Aeon). So like that." Reminds me of sitting in my grandmother's lap, thinking she had been alive forever.

Also, some think that a major nuclear war will bring into existence a world government which would then protect and order the planet.

Second:

We should fight against preparations for nuclear war: As Steve Ladd at War Resisters League said, "at least to confirm my own sanity." As the Quakers say, to bear witness. To let the bastards know they're not getting away with it. Maybe, with luck, to inspire people and their leaders to refuse the arms race and finally war itself.

We should not resist war: Stewart Brand said about his and his friends' attitude toward Vietnam: to fight it is to feed it. When the Navy launches a Trident submarine and Greenpeace launches the expected protest boats alongside it, everything seems somehow balanced, comfortable, without real movement. What would happen if the peace movement resigned *en masse*? Would it make the general populace more nervous about the arms race, or would they go right back to sleep?

Another problem about resisting war is that, unfortunately, war is still for some the most thrilling, challenging game in the world, where nations can play out a drama that involves life and death, starring convincing good guys and bad guys, with opportunities for the matchless thrill of pushing people to their limits in a context where success *really matters,* where hundreds or thousands or millions of lives

CANADA: Project Ploughshares, 427 Bloor Street West, Toronto M5S-IX7, Ontario.

JAPAN: Council Against A and H Bomb, 6-19-23, Shimbashi, Minatoku, Tokyo 105, Japan.

AUSTRALIA: Australian Peace Liaison Committee, POB A-243, Sydney, PO NSW, Australia 2000.

ENGLAND AND EUROPE: International Confederation for Disarmament and Peace, 6 Endsleigh St., London, England WC1-HODX.

See also the American Friends Service Committee and Fellowship of Reconciliation.

PERIODICALS

There is no one periodical in which one can follow all the activities of the peace movement. Most of the organizations listed here have newsletters or other periodicals. Two of my favorites are **Fellowship**, published by FOR, and a magazine called **Sojourners**, published by an evangelical Christian peace community of that name. **The Bulletin of the Atomic Scientists** is an old standby publication which is often tedious, but it has great cartoons and occasional great articles, such as Roger Fisher's piece in the March 1981 issue, "Preventing Nuclear War." The clearinghouse for the Call to Halt the Nuclear Arms Race publishes the **Freeze Newsletter**, which provides a good overview of

Advocating disarmament seems almost as ridiculous as suggesting that I cut off my young sons' arms to keep them from hitting each other. In the same simple sense, "arms control" suggests that maybe I should just cut off one arm each, to limit the damage.

depend on you, where something called Freedom seems to depend on you.

Will we invent a better game?

and Third:

The bomb is the problem. (Corollary: **Disarmament is the answer.**)
The very existence of nuclear weapons — and the existence of the systems for their procurement and deployment — makes it likely that nuclear war will occur. The temptation to use them will be decisive, sooner or later. Getting rid of nuclear weapons would make nuclear war impossible.

Also, it is immoral to make nuclear weapons.

Also, we don't yet know how to change the political structures or the aspects of "human nature" which seem to make war inevitable, so we should reduce the chances of an irreversibly destructive war by getting rid of nuclear bombs.

Also, the arms race is extremely expensive and wasteful. A military analyst recently said on television that we're now "so weapons-rich that we're having trouble finding interesting targets."

Also, the health and safety of the people who work or live around nuclear weapons facilities are jeopardized.

Also, willingness to enter into a program of disarmament would probably improve our communications with the U.S.S.R. and could break the vicious circle: fear of the "enemy" makes us arm; the enemy becomes more fearful of us and increases his arms; we respond by increasing ours; and so on.

The bomb is not the problem. (Corollary: **Disarmament is not the answer.**) Both the "hawks" and the "doves" make the mistake of projecting onto the weapons themselves the power to make war or peace. On an emotional/rhetorical level, the bomb is treated by the "doves" as the problem of war and by the "hawks" as the solution to the problem of war. These attitudes sometimes amount almost to a deification of the bomb, which constitutes a distraction from our knowledge that the problem must be solved in terms of human relations, not in terms of technology.

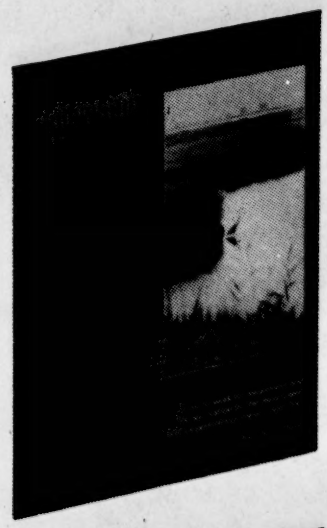
Also, as a strategy for the peace movement, positing "disarmament" as *the* goal of the movement has the great disadvantage that, in the eyes of the military, most governments, and much of the public, advocating disarmament seems almost as ridiculous as suggesting that I cut off my young sons' arms to keep them from hitting each other. In the same simple sense, "arms control" suggests that maybe I

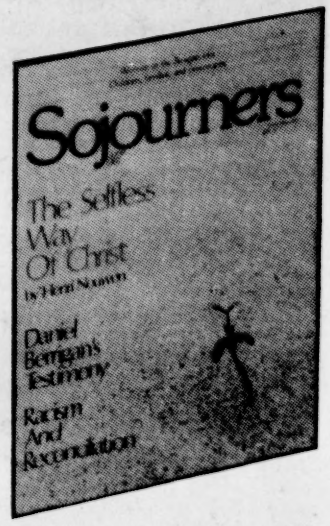
activities involving the Call (also known as the Freeze Campaign). **Evolutionary Blues**, which I co-edit, presents adventurous thinking on the subject of what it will take to master the nuclear genie.

Fellowship, edited by Richard Chartier, $8/year (8 issues) from Fellowship of Reconciliation, P.O. Box 271, Nyack, NY 10960.

Sojourners, edited by Jim Wallis, $12/year (12 issues) from Sojourners, 1309 L Street N.W., Washington, DC 20005.

The Bulletin of the Atomic Scientists, edited by Bernard T. Feld, $20/year (10 issues) from the Bulletin of the Atomic Scientists, 1020 East 58th Street, Chicago, IL 60637.





should just cut off one arm each, to limit the damage.

Also, even if public opinion does force a slowing or even a cessation of the nuclear arms race, we still face the possibilities of massively destructive conventional warfare and of chemical-biological warfare.

Also, the attraction to the technological power of nuclear weaponry is extremely compelling. Why would generals want to turn in their marvelous nuclear weapons for some jars of germs or millions of tons of napalm? Witnesses to the first atomic explosion made such remarks as "the beauty that the great poets dream about . . . " and "One felt as though he had been privileged to witness the Birth of the World . . ." The nuclear genie is not likely to return quietly to his bottle; we have to learn to master him, and master our political selves.

WHY DO WE DO IT?

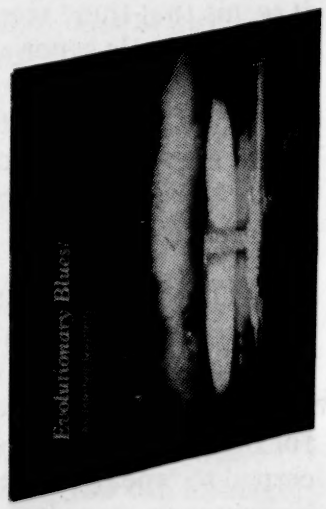
The last paradox I want to talk about is, why is it that those of us who have confronted the gory details of possible nuclear war and the abstract institutional horrors which perpetuate the threat of it, don't simply "eat, drink, and be merry, for tomorrow we die?" How is it that our finally losing hope creates new hope — or at least a quality of will? Why do we so often keep on choosing to work on the issue? This question is satisfying to contemplate, because it reminds me that we must after all love our lives. And yet fear of losing our lives is no longer a primary motive. We have lived, in our imaginations, through the holocaust. Or died, but it's done. There is no need to hide — and of course no place to hide. We are alive, we are awake, and this is the work we find before us.

—A.J.

The Freeze Newsletter, edited by Mark Niederdang, $5/year (4 issues plus monthly updates) from the Clearinghouse for the Call to Halt the Nuclear Arms Race, 251 Harvard Street, Brookline, MA 02146.

Evolutionary Blues, edited by Alia Johnson and David Hoffman, published occasionally, $3.50/current issue from Evolutionary Blues, P.O. Box 4448, Arcata, CA 95521.

more →



My favorite activity is inventing. An early arms control proposal dealt with the problem of distancing that the President would have in the circumstances of facing a decision about nuclear war. There is a young man, probably a Navy officer, who accompanies the President. This young man has a black attache case which contains the codes that are needed to fire nuclear weapons. I could see the President at a staff meeting considering nuclear war as an abstract question. He might conclude: "On SIOP Plan One, the decision is affirmative. Communicate the Alpha line XYZ." Such jargon holds what is involved at a distance.

My suggestion was quite simple: Put that needed code number in a little capsule, and then implant that capsule right next to the heart of a volunteer. The volunteer would carry with him a big, heavy butcher knife as he accompanied the President. If ever the President wanted to fire nuclear weapons, the only way he could do so would be for him first, with his own hands, to kill one human being. The President says, "George, I'm sorry but tens of millions must die." He has to look at someone and realize what death is — what an innocent death is. Blood on the White House carpet. It's reality brought home.

When I suggested this to friends in the Pentagon they said, "My God, that's terrible. Having to kill someone would distort the President's judgment. He might never push the button."

Roger Fisher
Bulletin of The Atomic Scientists

MY FAVORITE THINGS

In addition to this broad description of the peace movement, I'd like to mention some small gems of activity and information which have particularly impressed me.

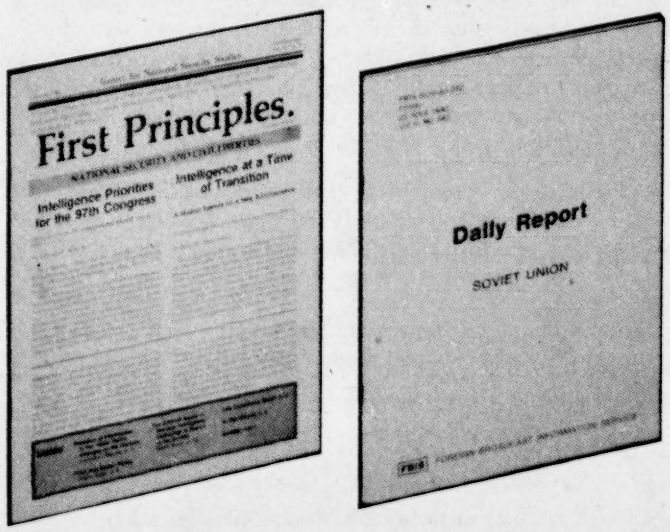
Interhelp (P.O. Box 40426, San Francisco, CA 94140) offers workshops by Fran Peavy called Awakening in the Nuclear Age ($25-$58). Brochure free. The workshops are partly encounter group style, with "despair circles" of people expressing their feelings about the threat of nuclear war; some time is spent teaching people how nuclear bombs work, covering civil defense and survival materials; then people discuss how they might get involved in peace work. Like all emotional workshops, these groups can produce a temporary hysteria in the participants, but so far it seems that these workshops are indeed making people saner and more responsible about dealing with the issue of nuclear war in their lives. Similar Interhelp workshops are run on the East Coast by Joanna Macy, 3508 Lowell Street N.W., Washington, DC 20016. Information free.

Ross Flanagan, a leader among Quaker peaceworkers, has written a moving essay on the process of learning to base one's work in compassion rather than fear: "A . . . suggestion for our consideration as peacemakers concerned to 'speak to the condition' of our society is my strong recommendation that we stop trying to fight fire with fire. I am opposed to appealing to people's fears of the nuclear holocaust as *our* basic incentive to *their* embracing a commitment to peace." His understanding of the fundamentals of this business is very deep: ". . . One of the things that has made fear so particularly debilitating to our efforts at social change is its tendency to isolate, immobilize and reinforce its hold on people by locking us into a particular way of looking and relating to things. A hallmark of our materialist culture, fear seems to have the effect of breaking up and objectifying our experience of the flow of life, so that we take things too seriously, begin to restrict and ritualize our contact with others, and ultimately come to distrust what we know of life and the rule of God/love in the world." The essay, called "Keeping Our Eyes on the Prize," is available from Flanagan for $1 postpaid. Write him at Box 133, Eayerstown Rd., Medford, NJ 08055.

Gary Novak (418 Reed Street, Port Townsend, WA 98368), who describes himself as an "amateur dissenter," recently committed civil disobedience at the Indian Island Undersea Warfare Naval Detachment near his town. Instead of the usual "not guilty" plea in response to charges of criminal trespass, Novak pleaded temporary insanity so that he would be able to discuss in court the reasons for his actions and engage in dialogue with the court about his understanding at the time of the deed of the difference between good and bad. The prosecution was so alarmed at this prospect,

Novak reports, that they dropped the charges against him — to his disappointment. This might be a useful tactic for the many groups who engage in civil disobedience, and Gary would like to hear from anyone who tries it.

First Principles is a fascinating newsletter which reviews U.S. intelligence activities, external and internal. They keep track of what the CIA is up to (to the extent that the information is available) and report on the legal debates and new laws governing intelligence. $15/year (9 issues) from the Center for National Security Studies, 122 Maryland Avenue N.E., Washington, DC 20002. Their December 1980 issue ($1 postpaid) reviews "Surveillance and Disruption of Antinuclear Protest."



Another fascinating publication is the Foreign Broadcast Information Service's **Daily Report.** It contains current news and commentary monitored by FBIS from foreign broadcasts, news agency transmissions, newspapers and periodicals, and is published every day Monday through Friday, in separate volumes covering these areas: I. People's Republic of China; II. Eastern Europe; III. Soviet Union; IV. Asia and Pacific; V. Middle East; VI. Latin America; VII. Western Europe; VIII. Sub-Saharan Africa. The issue I have, from the Soviet Union volume of April 1980, is sixty pages long and all by itself constitutes an education in official U.S.S.R. attitudes about other countries, especially the U.S., and about their place in the world. What a cure for our parochialism it would be to read all the volumes for a while! Although the subscription price is prohibitive ($150 per volume per year for the printed version, or $400 for all eight volumes), the **Daily Report** can be found in some public and university libraries, and is free to U.S. Government officials. For information: National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22151.

The News Letter (edited by Betty Johanna) publishes real-life stories about war tax resistance. Their Tax Resistance Issue ($ .60 postpaid) lists legal and illegal methods of resisting or avoiding war taxes, as well as a number of war tax resistance counselors, centers, and alternative funds. It's published occasionally and has no set subscription fee; send a donation to **The News Letter**, 331 17th Avenue East, Seattle, WA 98112.

"Feminism: The Hope for a Future" is a collection of feminist writings on the draft, war, technology, and the political process. It is an issue of an AFSC newsletter called **Peacework**, $8/year (11 issues) from Peacework, 2161 Massachusetts Avenue, Cambridge, MA 02140. The Feminism issue (available alone for 50¢) contains top quality thinking on the psychological roots of the arms race, along with some cutting anti-male diatribes.

HOW TO PREVENT NUCLEAR WAR: SOME SUGGESTIONS

1. **Be good to yourself. Forgive yourself your trespasses.**
2. **Be good to your children, your neighbors, your friends, your enemies, and your politicians.**
3. **Pursue sanity and compassion. Learn to be peaceful.**
4. **Give up blaming.**
5. **Bear witness, especially in your own community. You don't need to understand the global political situation or the details of the arms race unless that is your profession or your calling. Most of us will need to stay local. Get to know your local bomb, your local soldier, your local general, your local armaments manufacturer. Get to know the bomb in your own heart. Find a Russian and get to know her or him.**
6. **Liberate women.**
7. **Study the art/science of conflict resolution; practice and improve it.**
8. **Join the peace movement, or the army, or the foreign service, or get yourself elected President or Senator or school board member, and be peaceful there. Or go to Russia and be peaceful there. For one minute a day, or whatever you can manage; it isn't easy.** ■

The Night of the New Moon

A moral poet in a Japanese prisoner of war camp during World War II.

Laurens van der Post was starved on three ounces of rice a day, beaten, tortured, and forced to watch other prisoners tied up and used for bayonet practice, strangled, and beheaded. He knew that at the moment that the allies invaded Southeast Asia, all the prisoners that Japanese soldiers held — hundreds of thousands — would be killed. Through all this he didn't feel that his Japanese captors were evil but that . . .

. . . consciously or unconsciously, they were instruments of complicated processes of a kind of accumulated revenge of history on the European for his invasion of the ancient worlds of the East and his arrogant assumptions of superiority which had made him use his power in the physical world to bend the lives and spirits of the people of Asia to his inflexible will. The fact that the European had brought also to the Far East his great Roman virtues was for the moment forgotten. All that mattered was that for centuries his powerful presence had prevented the peoples of the Far East, so diverse in character and culture, from being their own special selves.

These processes of frustration indeed had been carried on for so long that it was almost as if the peoples of Asia had only to come into the presence of a European to be hypnotized out of being themselves, and forced to live a kind of tranced life in his presence that was not their own. But now the spell was broken, and the built-up flood of resentment following centuries of frustration had broken through all restraints. Out in full spate, in the open at last, it swept the Japanese, normally so disciplined, but now drunk on what for the moment appeared to be invincible military power, into a chaotic mood of revenge on those who belonged to the world which had been responsible for that resentment.

So much were the Japanese themselves caught up in the psychology of this aspect of their conquest that it completely dominated their view of their European prisoners. They never saw us as human beings, but as provocative symbols of a detested past. They had only to look at us for this urge of resentment to quicken in their blood to such an extent that I still marvel not so much at the excesses they perpetrated as at their restraint.

I remember saying to Nichols at the time that one of our gravest dangers was that we were imprisoned at a moment when not just the chickens but all the *pterodactyls* of our history in the Far East had come home to roost.

I myself had no doubt that in time the Japanese would be defeated, but what I could not tell, in the light of all this, was how they could ever be defeated in such a manner that they themselves would be relieved of these overwhelming compulsions, of this unconscious sense of a duty, a mission of history to carry the feud aflame in their blood to a final cataclysmic end in which they and all people they had captured would have to perish.

It was on the night of the new moon that the answer came. The prisoners' secret radio, hidden in one of the pairs of handmade wooden clogs they all wore, had been broken for several weeks. They had managed to steal a part from the camp commandant's record player and fix it, and one man who was adept at finding far-off stations amid all the static finally picked up a news broadcast from Delhi.

Unfortunately he had not come in right at the beginning, but near enough it to realize that something tremendous had happened. He wasn't quite certain what precisely it was, but in the course of the morning of the day which was now ended, something more like an act of God than of man had been inflicted on Japan at a place called Hiroshima.

Exactly how and what had been done he couldn't tell. All he knew was that it was something new and terrible in human experience, more terrible even than earthquakes, tidal waves or volcanic eruptions. In fact he was not at all certain, when he recollected the emotion and excitement of the announcer's voice, whether it was news he had heard or not just an actor in some kind of horrific radio play.

But surely, I remarked, he could have told whether this was so or not from the rest of the news of how the war was going on elsewhere, which would normally have followed. That was precisely the trouble, he whispered, there was nothing but talk of this great kind of cataclysm which had taken place or had been inflicted on Japan, and speculation over its consequences, all of which it had been difficult to piece together and assess accurately, because the reception had not been all that good.

He was certain only that he had picked up an atmosphere of something which, if true, showed that the final turn of the tide in the war might have come.

Van der Post was wondering if some new force had entered the world or if the radio operator had happened on something like Orson Welles' **War of the Worlds** *broadcast, until the next night, when the radio man picked up broadcasts from Delhi, Perth and San Francisco that confirmed the news. Then he realized that . . .*

This cataclysm would end the war, and a new phase of the world would inevitably result from it. This cataclysm I was certain would make the Japanese feel that they could now withdraw from the war without dishonour, because it would strike them, as it had us in the silence of our prison night, as something supernatural. They, too, could not help seeing it as an act of God more than an act of man, a Divine intimation that they had to follow and to obey in all its implications. The continuation of the war by what we, for want of a better word and for fear of telling the truth call "conventional means," would have left them locked in the old situation of a battle of opposites in which their whole history, culture and psychology would have demanded death either in fighting or by their own hand.

But this was something miraculously new, something not foreseen in their or our own philosophy. It was

The Day after Trinity

How did Robert Oppenheimer get dozens of physicists, geniuses and prima donnas all, to work together under incredible pressure to invent the atomic bomb? How did these men, brilliant, humanistic, and often very far to the left politically, justify making the worst weapon ever? If they did it to stop Hilter (and many of them did), why didn't they stop working after Germany had been defeated and before the bomb was finished?

The men who made the bomb and have looked the consequences of their work in the face speak for themselves in the superb PBS documentary. It's a cancel-everything, drive-thirty-miles, make-all-your-friends-watch, rent-it-for-every-group-you're-in kind of program. We have been brought to this place not by bad men, but by men of good will doing their best. Doing <u>our</u> best may not be enough to get us out of it, but we can certainly offer the problem no less. —*Anne Herbert*

How personal the bomb is. I met Robert Oppenheimer when I was in prep school and immediately loved him and took him as a role model. His brother Frank, who lives in Sausalito, is a friend. Alia Johnson, who wrote the "Stopping the Unthinkable" survey, describes herself as a child of the bomb. Her father-to-be was one of the American soldiers poised in the Philippines for the assault on the Japanese home islands, a battle few really

something on so gigantic and undeniable a scale, such a manifestation of new power at work in life, that even they would know, as we who had been its terrible instrument of delivery would have to learn to know, that all the old ways, laws, rules, conventions and creeds which had brought us to this terrible impasse, had been judged invalid by life and something else would have to take their place.

He thought that the something else that people had to find to replace conventional warfare with unconventional peace had been present in the prison camps. For that reason he was utterly opposed to the war crimes trials of Japanese soldiers for wartime atrocities.

It was amazing how often and how many of my men would confess to me, after some Japanese excess worse than usual, that for the first time in their lives they had realized the truth, and the dynamic liberating power of the first of the Crucifixion utterances: "Forgive them for they know not what they do."

The tables of the spirit would be strangely and promptly turned and we would find ourselves without self-pity of any kind, feeling deeply sorry for the Japanese as if we were the free men and they the prisoners – men held in some profound *oubliette* of their own minds. . . .

I thought that the only hope for the future lay in an all-embracing attitude of forgiveness of the peoples who had been our enemies. Forgiveness, my prison experience has taught, me was not mere religious sentimentality; it was as fundamental a law of the human spirit as the law of gravity. If one broke the law of gravity one broke one's neck; if one broke this law of forgiveness one inflicted a mortal wound on one's spirit and became once again a member of the chain-gang of mere cause and effect from which life has laboured so long and painfully to escape.

After the war, Laurens van der Post became the productive author of many books, including **The Lost World of the Kalahari** *(NWEC, p. 43). But he didn't write about his prison camp experiences until twenty-five years after they were over. Right after the war he didn't want to be part of the glut of Japanese atrocity stories that kept wartime hatreds alive and took no account of why the Japanese had been so angry at Europeans. By 1970, he felt that people were very familiar with the horrors of Hiroshima but had forgotten the nature of the war in which the atomic bomb had been used. People had once found simple villains in the Japanese people who ran the camps and were now finding simple villains in the American people who dropped the bomb. Van der Post felt driven to share his perceptions of that time because . . .*

I had been drawn steadily over the years to a conclusion which has become almost a major article of faith. Men, I believed, were their own greatest villain – they themselves were the flies in their own ointment. Villains undoubtedly do exist in the wide world without. But they do so, in a mysterious and significant state of interdependence with the profoundest failures and inadequacies in ourselves and our attitudes to life. It is almost as if the villain without is a Siamese twin of all that is wrong within ourselves. The only sure way to rid life of villains, I believed, after years of thinking about it in prison, was to rid ourselves first of the villain within our own individual and native collective contexts. If we could take care of the measure of the failures in ourselves, I was certain that the world on the whole would ultimately take better care of itself.

This book made me feel confused and peaceful. Confused because it went against my born-in-1950 certainty that the bomb should never have been used, and peaceful because it showed that even under horrible mistreatment, people can move beyond anger to the something else we all have to find if we're going to live out the century.

–Anne Herbert

The Night of the New Moon
Laurens van der Post
1970; 125 pp.

£1 (about $2.50) postpaid from:
Penguin Books
Bath Road
Harmondsworth,
Middlesex UB70DA
England

or

$3.50 ($5.50 postpaid) from Whole Earth Household Store

expected to survive. My mentor, Gregory Bateson, working for the OSS in the South Pacific, was trapped on a sitting-duck ship by Japanese fighter-bombers. The planes went away for a final load of bombs to finish him off – and never returned, thanks to Hiroshima. Bateson and Alia Johnson are the two most active, imaginative, and effective nuclear weapons opponents I have known.

–SB

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Freeman Dyson: I have felt it myself. The glitter of nuclear weapons. It is irresistible if you come to them as a scientist. To feel it's there in your hands – to release this energy that fuels the stars. To let it do your bidding. To perform these miracles – to lift a million tons of rock into the sky. It is something that gives people an illusion of illimitable power and it is, in some ways, responsible for all our troubles, I would say – this, what you might call technical arrogance that overcomes people when they see what they can do with their minds.

Frank Oppenheimer: Nothing turned out quite as well as one thought it would. During the war, we all thought that with this device, which was a thousand times more powerful than anything else, we could really influence the way nations talked about war. And this was what my brother was so involved with after the war . . . . because there were no vested interests, there were no manufacturers of atomic bombs. Nobody knew about it. One said, "Here is a fresh start, and a weapon that you can't use for war. It can produce a change." But it didn't. Everybody regards the atomic bomb as just another weapon, as part of our security.

Hans Bethe: The first reaction which we had was one of fulfillment. Now it has been done. Now the work that we have been engaged in for so many years has contributed to the war. The second reaction was, of course, one of shock and horror. What have we done? What have we done? And the third reaction: it shouldn't be done again.

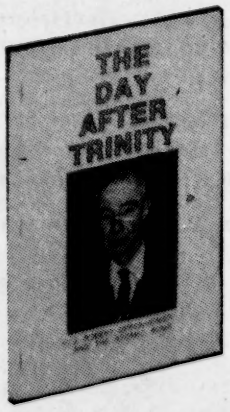
The Day after Trinity
(J. Robert Oppenheimer and the Atomic Bomb)
Jon Else, Director
1981; 90 minutes
16 mm film purchase
$955 postpaid

Videotape purchase
$455 postpaid

3 days rental
$130 postpaid

all from:
Pyramid Films
P.O. Box 1048
Santa Monica, CA 90406

The Day after Trinity
(Transcript of the Film, Unillustrated)
Jon Else, David Peoples and Janet Peoples
1980; 30 pp.



$4 postpaid from:
PTV Publications
P.O. Box 701
Kent, OH 44240
or Whole Earth Household Store

Black Rain

No one wants to marry Yasuko. At the end of the war, she'd been working in a school kitchen in Hiroshima. Now, four years later, the rumor is that she has radiation sickness and her uncle, Shigematsu, is trying to hide the fact to get her married off. But she doesn't have radiation sickness; she's perfectly healthy, and her uncle is desperate to prove the fact. So when a prospective suitor asks that her family account for her movements when the bomb was dropped, her uncle is happy to start copying her Hiroshima diary (and so learn more about those times than he and we knew). He's almost done with the copying when Yasuko gets diarrhea, then an abscess on her buttock, then a fever, and then her hair starts falling out. Radiation sickness, starting four years later and getting worse very fast. So her uncle starts to collect other people's stories of Hiroshima and radiation sickness in hopes of finding out how to save his niece.

The book moves backward and forward in time and up and down between the most mundane daily concerns and the fight for survival. You begin to feel how big that explosion was, and how long. It hasn't stopped yet.

—Anne Herbert

Black Rain
Masuji Ibuse and
John Bester
1969; 300 pp.
$6.20 postpaid from:
Kodansha International
Harper and Row
Mail Order Department
10 East 53rd Street
New York, NY 10022
or Whole Earth
Household Store

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I ran my hands over my face. The left hand came away wet and sticky. I looked, and found the left palm had something bluish-purple like little shreds of damp paper on it. I stroked my cheek again, and again some sticky substance came off on my hand.

It was extremely odd — I had no recollection of hitting my face on anything. It must be ash or dust or something else that rubbed off like tiny rolls of dead skin. I was about to feel it again when Mrs. Takahashi grasped my wrist.

"No you mustn't rub it! Leave it alone until you can put something on it. If you play with it, the germs will get in from your hand."

There was no particular pain, yet a mild horror prickled at the nape of my neck. My left cheek felt as though countless small particles were clinging to it. I made the skin move by opening my mouth wide and shutting it, and the impression of something sticking there grew stronger. Mrs. Takahashi would not let my left wrist go, so I furtively ran my right hand over my left cheek. Again the little shreds stuck to my palm. I rubbed them on the palm of my left hand, and it was like the shreds from a rubber eraser, but more slippery to the touch. A chill struck throughout my body. Suddenly, the uproar about me receded into the distance; it was not exactly faintness, but the mental shock of that moment was quite indescribable.

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"I had no idea where my husband was. The soldier who looked like an orderly called 'Medical Reservist Iwatake! Where are you?' so I called out too: 'Hiroshi! Are you here, Hiroshi?'

"Something seemed to grip my chest so that it was difficult to breathe. There was no reply. Then I saw a hand raised feebly, and it dawned on me that it was him. His face was swollen to twice its normal size, and the whole of his right ear was covered with gauze held in place with sticking plaster. He was in pain in his ear. One thing that struck me as strange was that when one patient groaned all the others would start groaning at the same time. It was an uncanny sound — perhaps I shouldn't say it, but it was for all the world like a chorus of frogs starting up in a paddy field."

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"Another symptom was that he was constipated for about ten days after the bomb fell. And he could only pass water a few drops at a time. It really must have been a terrible bomb — to have taken all the skin clean off his wrists like that, for one thing. 'Penetrating rays' they call them, apparently. It seems they affect the internal organs as well as the outside of the body. In my husband's case, the membrane lining the bladder came clean away and stopped up the urethra, so that he couldn't pass water. You know the kind of filmy white stuff you find inside when you split open a piece of dry bamboo? Well, the stuff that came off the inside of the bladder was just like that. The rays from the atomic bomb make mucous membranes peel off, you see. This was after we went to my brother's, so I'd say it was about three weeks after the bomb fell. All the same, he could make himself pass water by straining downwards and then, when the urine went into the urethra, pressing down on the sphincter muscle. You press with both hands on the lower part of the abdomen. Each time he went he'd pass it into a cup and examine it, then he'd show me how much of the stuff like bamboo film had come out. There was always quite a lot."

Nuclear-free zones

Dear **CQ** people,

Here in London, the Greater London Council's Labour Party group talks in terms of making London a nuclear-free zone.

Taking this idea a stage further, we have written to the Greater London Council and the Moscow City Council (Mossoviet) proposing the following:

The "twinning" of London and Moscow in a nonaggression pact — the Mossoviet and the GLC to liaise with their governments to arrange that both cities are guaranteed free of nuclear and chemical weaponry and that *they will not be targeted in the event of war.*

The aim would be to go on to persuade the councils of Washington, New York, San Francisco and all major cities (or other regions) and their governments worldwide to make similar mutual declarations.

We shall all be as old as Methuselah (or cindered long before) if we wait for multilateral disarmament on a national level, but decentralist piecemeal initiatives of this nature — detargeting civilian concentrations — would not threaten the security of any nation, would be humanitarian and could represent a psychological breakthrough.

The radius of the peace zones could be extended on a regular basis (with extensions in proportion to the population of a nation) leading at least potentially to eventual world disarmament.

We would welcome any help from **CQ** readers in refining, supporting and implementing similar "twinning" projects for their home areas. One of the 30 forums at our London Fourth World Assembly (July 30th to August 1st, 1981) will be on this Peace Action theme, and we would be grateful for reactions to include in the Assembly record.

With best wishes,

Nicholas Albery
General Administrator
First Assembly, The Fourth World
For Small Nations, Small Communities
and the Human Spirit
24 Abercorn Place, London NW8, England

Note: Peter Berg is attending the astounding London Fourth World Assembly for the Winter '81 issue of **CQ** *he is co-editing with Stephanie Mills. Stay tuned. —SB*

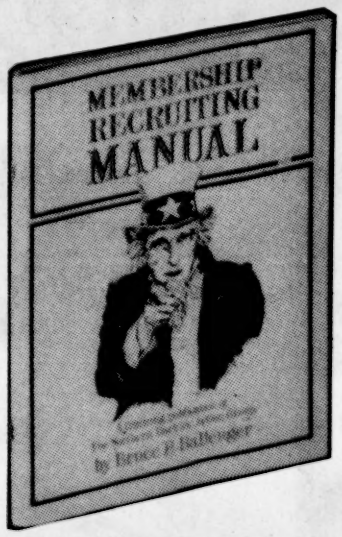
HITLER HOLOCAUST KICKS

by R. CRUMB

Membership Recruiting Manual

Whatever your cause, it's not likely to stand a chance without strong membership support. This is the best recruiting manual in print — how to: organize, do direct mail appeals, canvass door-to-door, use special public events, advertise, publicize, and keep records. —*SB*

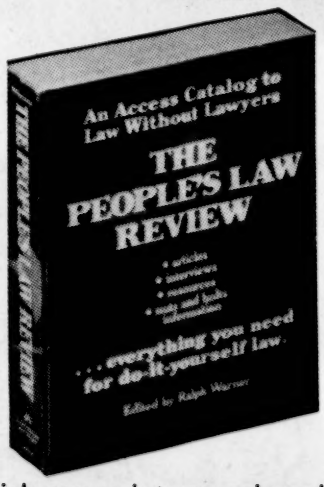
Membership Recruiting Manual
Bruce B. Ballenger
1981; 96 pp.
$10 postpaid from:
Northern Rockies Action Group
9 Placer Street
Helena, MT 59601



The People's Law Review

The first complete book in its field. Useful on the shelf of any community activist group, feisty organizer, or public service-oriented lawyer. I would feel hurt learning about this book several years after it was published. It opens many doors for quick useful community action.
—*Michael Phillips*

The People's Law Review
Ralph Warner, Editor
1980; 359 pp.
$8.95 postpaid from:
Nolo Press
P.O. Box 544
Occidental, CA 95465
or Whole Earth Household Store



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Litigation is a machine which you go into as a pig and come out as a sausage. —Ambrose Bierce

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In the mediation model, there is enormous pressure on the mediator to work at a resolution because that's what success is for a mediator. Success is getting the person to say "I'll take X even though I didn't get Y." There's the tradeoff. It's like horse-trading, and that's what he or she is trained to do. Success is getting a compromise that will work.

Well, I think that there are real problems with that whole process. The issue for neighborhoods is not conflict resolution. That is secondary. The primary issue for neighborhoods is honoring conflict; that is to say, that it's okay if people have conflicts.

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Civil Remedies
Several forms of civil relief are available to battered women. These include:
- Protection Order
- Temporary Restraining Order
- Peace Bond
- Divorce or Separation
- Child Custody and Visitation Rights
- Alimony and Child Support
- Money Damages for Personal Injury

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While self-interest is often an initial motivator in organizing, social needs, altruism, and newly-found political values are often the reasons that people choose to stay with the organization. One of the marvels of organizing is watching that transformation.

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Tips from Successful Recruiters

(1) *Tell people exactly what you want them to do* — go to a meeting, become a member, etc. One of the reasons we sometimes neglect this is because if we don't quite ask we don't quite get rejected. The persons may know what you are driving at, but they are more likely to give it to you if you lay it on the table.

(2) *Make it as easy as possible* — Don't lose a yes because neither you nor he had a pen to write a check.

(3) *Let the person talk himself into joining* — Have a two-way conversation; don't just give a rap. Build your case on what they say, not just on what you planned to say.

(4) *Give alternatives* — If you give them a list of possibilities to choose from, they are more likely to say "yes" than if you give one option on which a "yes" or "no" decision rests.

(5) *People give to people* — Allow the warmth of your personality to come through. Treat your potential recruits like real people. Let them know you are genuinely interested in what they have to say.

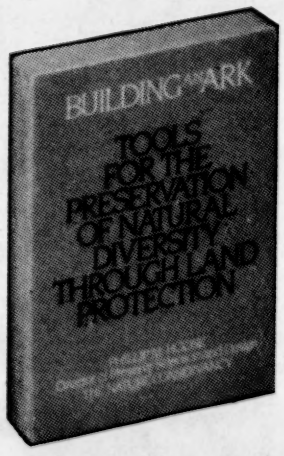
(6) *Strike while the iron is hot* — Motivation dissipates. Whatever your pitch is, its maximum effectiveness is at the moment you're giving it; it fades in effectiveness with time. Try to get some sort of commitment right then and there. If the best you can get is: "I'll think about it," at least leave the ball in your court. Tell him or her you will call back in a few days. Don't leave it that he or she will call you.

If someone says he or she will send a check, ask him or her to send it to your attention, so he or she knows you will be looking for it. Also, whenever you are in the position of asking for money, get a check rather than cash, whenever possible. People who go to the trouble of writing a check will usually give more than people who pull a few bills out of their pockets.

Building an Ark

The nuts and bolts of wildland preservation, by an exemplary land saver for the Nature Conservancy. The techniques of property are used to make sufficiently cherished land no longer be property in the buy and sell sense.
—*SB*

Building an Ark
(Tools for the Preservation of Natural Diversity Through Land Protection)
Phillip M. Hoose
1981; 221 pp.
$12 postpaid from:
Island Press
Star Route, Box 38
Covelo, CA 95428
or Whole Earth Household Store



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The first chapter presents a rationale for the preservation of natural diversity. Chapters Two and Three consider heritage programs and how they can be used to identify areas of critical importance. Chapter Four discusses the need for expanded protection options; Chapters Five through Eleven explore specific tools; Chapter Twelve attempts to offer a crash course in lobbying. Chapter Thirteen considers the potential application of ecological data, and Chapter Fourteen offers a model for using all the tools together in a hypothetical state.

LAND USE

Job Opportunities Bulletin

I've heard it through the grapevine that the best jobs in agriculture are with the international relief programs. They're not part of government, nor of the corporate realm, and they are frequently innovative, both agriculturally and politically. Some, such as Meals for Millions and the American Friends Service, also do projects in the U.S. "There's a lot more flexibility than in the Peace Corps," says Gary Nabhan, who works for Meals for Millions assisting farmers on the Papago Indian Reservation Reservation in Arizona. **The Job Opportunities Bulletin** *lists job openings with these programs world-wide in agriculture, health, and education.*

—Rosemary Menninger

Job Opportunities Bulletin
Shashi Gupta, Editor

$7.50 /year (6 issues)
from:
TransCentury Corporation
1789 Columbia Road NW
Washington, DC 20009

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Farm Manager/Western Samoa: Be in complete charge of the fruit, vegetable, and staple crop production for approximately 200 acres of land; train local staff. Requires degree in horticulture and/or agronomy plus three years experience, preferably in the tropics (five years relevant experience substitute for degree.) Three year assignment. Resumes and salary history to : Arthur Stegmayer, Catholic Relief Services, 1011 First Avenue, New York, NY 10022.

Desertification of the United States

If our cost-cutting California cowboy President succeeds in putting the Council on Environmental Quality out to pasture, it will at least have spread the word with this book that there's not much to graze on out there anymore. This is a scary story, not from flamboyant language or claims, but because of the mass of specific regional detail. Visit the 1.1 million acres in California's San Joaquin Valley that are becoming useless for farming because of salt build-up; see the 50-foot-deep cracks in the soil of Maricopa County, Arizona; choke on the topsoil blowing over Gaines County, Texas, and then tell us if you can what the ghost of John Wesley Powell — who predicted all of this over 100 years ago — must be saying.

—Richard Nilsen
[Suggested by Wes Jackson]

Desertification of the United States
David Sheridan
1981; 142 pp.
No. 041-011-00065-3

$4.25 postpaid from:
Superintendent of
of Documents
U.S. Government
Printing Office
Washington, DC 20402

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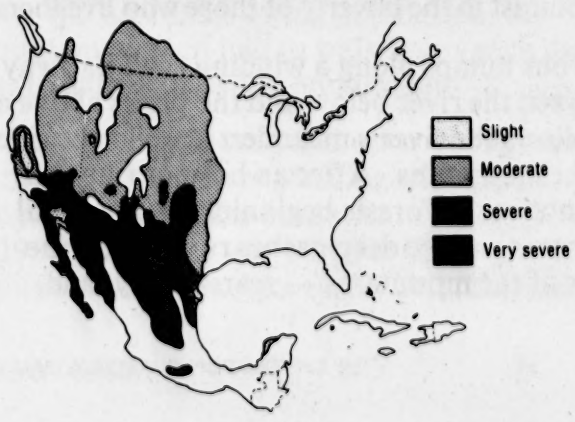
The overall land area affected by desertification in North America is surprisingly large. Harold Dregne, head of the International Center for Arid and Semi-Arid Land Studies at Texas Tech University, calculated that 1.1 million square miles, or 36.8 percent of the continent's arid lands, have undergone "severe" desertification. Some 10,500 square miles of the continent have undergone "very severe" desertification, according to Dregne. By contrast, Africa's "severe" desertification totals 4 million square miles, but its "very severe" desertification is less than North America's — 5500 square miles. . . .

This estimate suggests that approximately 10 percent of the U.S. land mass is in a state of severe or very severe desertification. The actual acres *threatened* by severe desertification, however, are almost *twice* that amount.

Status of Desertification in North America



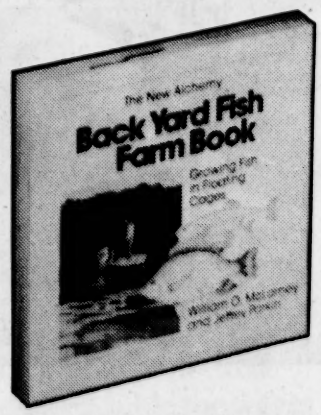
The New Alchemy Back Yard Fish Farm Book

*Bill McLarney, New Alchemy's chief in Central America, knows a prodigious amount about the farming of waters. His first aquaculture book, published ten years ago, was nominated for the National Book Award in Science and became the bible in the field (***Aquaculture,** *The Farming and Husbandry of Freshwater and Marine Organisms, 1972, 868 pp., $26 postpaid from John Wiley and Sons, One Wiley Drive, Somerset, NJ 08873. Or Whole Earth Household Store). He has a way of combining scholarship, practical experience, wit, and a beautiful writing style. In* **The New Alchemy Back Yard Fish Farm Book** *he teams up with biologist/illustrator Jeffrey Parkin to focus on a new and important side of aquaculture, namely the growing of fishes in floating cages. Anybody with access to a lake, pond, estuary, or slow-moving stream and a few cages can become a hobby fish farmer. A few more cages can become a commercial operation. In cages you can grow channel catfish, trout, bullheads, sunfishes, carp, eels, and even filter feeders like tilapia. McLarney and Parkin tell you how, and with style. Among aquaculture books this is a four-star effort and I highly recommend it.*

—John Todd
New Alchemy Institute

The New Alchemy Back Yard Fish Farm Book
(Growing Fish in Floating Cages)
William O. McLarney and Jeffrey Parkin
1981; 128 pp.

$5.95 postpaid from:
Brick House Publishing Co.
34 Essex Street
Andover, MA 01810
or Whole Earth Household Store



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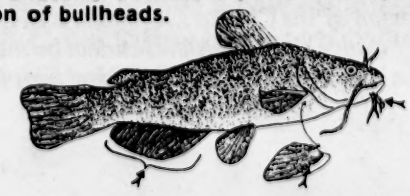
Why raise food in water? If you are fond of eating fish, and have bought any lately, you realize that one incentive to raise your own fish is its market cost. If you are energy-conscious you should know that fish are perhaps the most efficient converters of feed into animal protein. If you are concerned about nutrition and health you may appreciate that as compared to other meat animals, fish are low in fats and cholesterol. And you are probably aware of current problems with pollutants such as heavy metals and PCBs in wild ocean and freshwater fish and shellfish. Even the taste of really fresh, home-grown fish is superior, just as vegetables fresh from the garden are superior to supermarket produce.

Brown bullhead (Ictalurus nebulosus) showing portions of the external anatomy of most importance in species identification of bullheads.



Chipko: North India's Tree Huggers

DON RYAN

by Mark Shepard

ENVIRONMENTAL CONSERVATION SPRING 1981

IT WAS ON MY VISIT TO INDIA IN late 1978 that I first heard of the Chipko Movement. My social activist friends thought it was important: mountain villages stopping big lumber companies from clear-cutting mountain slopes by issuing a call to "hug the trees." At the time, I knew next to nothing about trees and ecology or the world-wide destruction of forests and its costs in terms of firewood shortage, soil erosion, weather shifts, and famine. It wasn't until I returned to the U.S. that I learned of these wider implications.

Still, I knew I had to write about Chipko. The more I learned, the more the story seemed like a near-perfect parable of the struggle of common people against big government and business — a struggle for control of the natural resources that underpin survival and well-being.

So I boarded the bus going northeast from Rishikesh. Each morning the bus follows the river Ganges toward its source, soon leaving the crowded plains behind and climbing into the Himalayas. Thick forests cover the mountain slopes, interrupted only occasionally by terraced fields reaching dramatically up the mountain sides. This is the Uttarakhand, the mountain region of Uttar Pradesh state, which lies against India's tense border with Chinese-ruled Tibet. It is a land of rich natural resources — a richness in contrast to the poverty of those who live there.

The bus bumps along a winding road halfway between the river below and the peaks above as it follows the river's meanders around the sides of the mountains. After an hour or two you can notice the forests beginning to thin. Still later you can see deep gashes running up the sides of the mountains — scars left by land-

Mark Shepard is a freelance writer living in the Humboldt Bay area of northern California — another "forest colony." He is currently working on a book about successors of Mahatma Gandhi in India and the West. He is also the author of ***How to Love Your Flute*** *(NWEC p. 477).*

Inquiries about the Chipko Movement can be sent to Anupam Mishra, Gandhi Peace Foundation, 221 Deen Dayal Upadhyaya Marg, New Delhi 110002, India. Letters to India should be addressed in capital letters.

As remarked in a recent issue of ***Environmental Conservation****, the lesson of the Chipko Movement is that "due ecological balance and ecosystems cannot be maintained without the active association of the local people." —SB*

MARK SHEPARD

"Let them know they will not fell a single tree without felling one of us first. When their men raise their axes, we will embrace the trees to protect them!"

Chandi Prasad Bhatt

slides. At some points the bus comes upon debris piled up at the edges of the road and several times the bus must drive over debris not yet cleared away. As you continue on, the slopes are increasingly bare.

It is already dark when the lights of the small town of Gopeshwar come into view. You have reached the home of the Chipko Movement.

Gopeshwar is the home village of Chandi Prasad Bhatt, who in the early 1950's was a ticket clerk in Rishikesh for the bus company. Like most men of the mountain villages, he had been forced by a shortage of farmland and jobs to come to the plains to find work.

Chandi Prasad was much concerned with the plight of the mountain people. He often walked through the mountains to talk to them about their problems.

Besides lacking enough farmland and jobs, the mountain people suffered under an oppressive government forest policy. They depended on the forests for firewood, fodder for their cattle, and wood for their homes and farm tools, but the government restricted huge areas from their use, then auctioned off the trees to lumber companies and industries from the plains — a practice inherited with little change from the British colonialists. Because of these restrictions and an ever-growing population, the mountain women had to walk hours each day just to gather firewood and fodder.

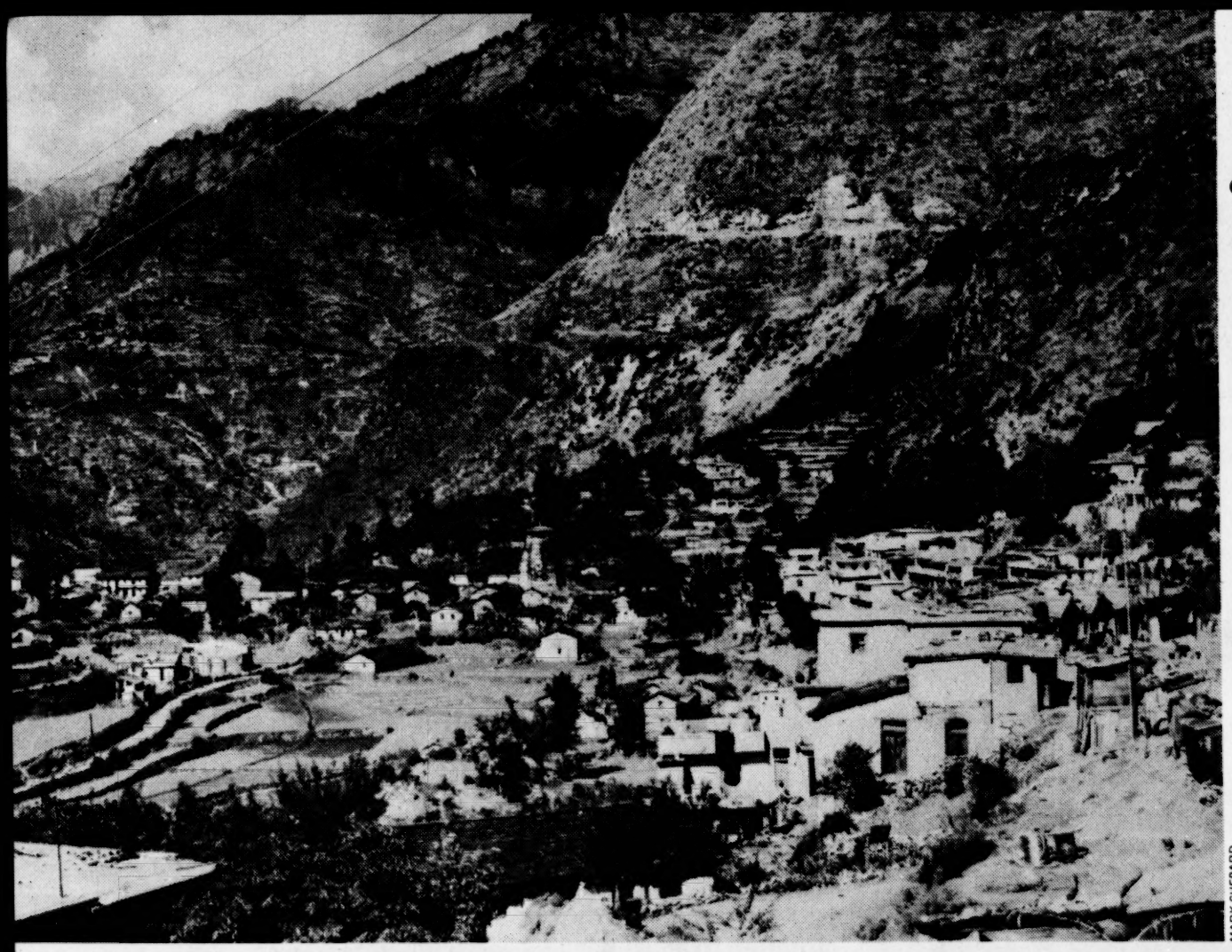
In 1956 Chandi Prasad and other young men of the region began organizing self-help programs among the mountain villages. Then in 1962 the border war between China and India brought drastic changes to the Uttarakhand. Though the region was not involved in the fighting, the war turned the Indian government's attention to all its borders with China. The Uttarakhand was slated for rapid economic development, and road building began throughout the area. Towns grew with workers arriving from the plains. Lumbering operations grew dramatically as the roads brought remote forests into easier reach.

The mountain people didn't benefit much from this development. The construction work was awarded to contractors from the plains, who brought with them skilled and semiskilled laborers. The mountain people were paid next to nothing for menial labor only. Meanwhile the influx of workers put even greater pressure on the forest resources.

In response to the job situation, Chandi Prasad and his colleagues organized a labor cooperative, with 30 full-time members and 700 part-time. The co-op bid for and won several contracts to build sections of road. On these jobs the co-op was able to pay double the wages paid by outside contractors to their own workers.

But soon the co-op found hurdles placed in its way. For instance the co-op's completed jobs were undervalued by government assessors, causing the co-op to lose money. It seemed the co-op's practices and successes had offended some people. The co-op was faced with the prospect of either losing more money or greasing the palms of government officials. Instead, it decided to stop building roads.

Now the workers formed a new organization, the Dasholi Gram Swarajya Sangh ("Dasholi Society for Village Self-Rule"; Dasholi is the



The village of Gopeshwar, where the Chipko Movement was founded

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name of the administrative unit centered around Gopeshwar). The purpose of the Sangh was to start small industries using the resources of the forests. Its first project was a small workshop making farm tools for local use.

After a while the workers also began bidding in government auctions for forest lots and won four small contracts. They sold some of the wood locally and the rest in the plains. Within a few years the number of full-time workers had grown from thirty to over 200.

But the lumber companies seemed determined to put an end to the competition by overbidding on the lots, making up losses by illegally cutting extra trees. Again the workers were forced to turn elsewhere.

Next they tried buying and marketing herbs collected by mountain gatherers — herbs that were normally sold to plains traders who made outrageous profits on the resale. The Sangh was able to pay much higher prices to the gatherers and even drove up the prices paid by other traders.

Their next effort was a small processing plant to make resin and turpentine from pine sap — one of eight being set up in the area with help from the federal government. But the state Forest Department refused to allot adequate supplies of pine sap or to allow the plants to buy it at the same price paid by a partly state-owned producer in the plains.

Then in 1970 the workers came face to face with another consequence of official forest policy, this one more grim than any they had yet faced. The monsoon rains of that year flooded the Alakhnanda River (a tributary to the Ganges). Hundreds of homes were swept away — including one entire village — as well as five major bridges and thirty passenger-laden buses. Almost 200 people died. When the waters reached the plains, over a hundred miles downstream, they dropped silt that clogged nearly 100 miles of canal. The clogging halted irrigation and power production in the northern part of the state and eventually took six months to clear.

The Sangh workers launched a relief operation, reaching to mountain villages marooned by the flood. During the operation they talked to the villagers about likely causes of the flood, and made their own observations as well. It became clear that the chief cause was the clear-cutting of mountain slopes by the lumber companies, as directed by the Forest Department. Cleared mountain slopes allowed more rain to run off into the river and the soil of bare slopes was washed away by the rains or fell in landslides. Much of this soil was deposited in the river, raising its level and forming temporary dams that burst under pressure. Though the Forest Department had a program of replanting cleared slopes, its efforts were inadequate. Bare slopes usually remained bare.

Clear-cutting was the main culprit, but there were other causes as well. Road building often

caused landslides when proper construction methods were disregarded. And the mountain people themselves — restricted to limited forest areas, pressured by a growing population, and mostly unaware of the effects of their actions — had bared many slopes by overgrazing and gathering.

The workers prepared a report of their findings and submitted it to the government. It brought no response. The workers themselves, however, had learned a lesson they would not forget: The same forest policy that denied them fair use of forest resources was gradually destroying their mountain home.

In October 1971, the Sangh workers held a demonstration in Gopeshwar to protest the policies of the Forest Department. Over the next year the Sangh workers talked with high officials and also ran a press campaign to publicize their demands, but none of that effort seemed to bear fruit. In late 1972 more meetings and marches were held, but these too failed to bring results. The thoughts of the Sangh workers turned toward direct action.

Meanwhile the Sangh had received a fresh blow: The Forest Department turned down the Sangh's annual request for ash trees for its farm tools workshop. The Department then turned around and allotted some of the same ash trees to the Simon Company, a sporting goods manufacturer from the plains. The Department had put tennis rackets before plows!

In March 1973, two Simon Company agents arrived in Gopeshwar to supervise the cutting of the trees. They were told there was no hotel, so they applied for lodging at the guest house of — the Dasholi Gram Swarajya Sangh. When the agents told the Sangh workers who they were and their business in town, the workers were stunned. But they quickly remembered their traditional hospitality and helped the visitors settle into their rooms. Then they rushed off to tell Chandi Prasad Bhatt.

The news hit Chandi Prasad hard. In desperation he declared, "Let them know they will not fell a single tree without felling one of us first. When their men raise their axes, we will embrace the trees to protect them!"

A few days later a public meeting to discuss the situation was held at the Sangh headquarters. A number of ideas were brought forward. Finally Chandi Prasad told his idea of hugging the trees to protect them from the laborers' axes. (*Chipko* means "hug," or "cling to.") He locked his hands together in a gesture of embrace. After a few moments of stunned silence, the people began to shout their agreement: Yes, they would hug the trees! They drew up a resolution to send to government officials, announcing their plan.

Sangh workshop

MARK SHEPARD

Several weeks later, the Sangh workers learned that the trees were marked and were about to be felled. On April 24 Sangh workers and others marched out of Gopeshwar, beating drums and singing traditional songs. When they reached Mandal village, just below the forest where the marked trees stood, they held a rally of about 100 people. The Simon Company agents, on their way to meet the lumbermen already in the forest, were startled to come upon the Chipko rally. Unnerved, they retreated without the trees.

Forest Department officials offered to let the Sangh have one ash tree if it allowed the Simon Company its full quota. When the Sangh refused, the officials raised the offer to two ash trees, then three, five, then ten trees — the Sangh's original request. But the Sangh workers were unwilling to allow the Simon Company its quota at *any* price. The allotment of trees to the Simon Company was a glaring symbol of an unjust forest policy that cared more about outside businesses than about the people who lived among the forests.

Finally the government gave in. The Simon Company's permit was cancelled, and the trees were assigned to the Sangh instead. Soon after, the government also announced it was ending the discrimination in pine sap supplies. But that same month the Sangh workers learned that a new set of ash trees had been alloted to

Workers of Dasholi
Gram Swarajya Sangh

MARK SHEPARD

the Simon Company in the Phata forest, in another part of the district.

Chandi Prasad and another worker rushed to the Phata area to tell the villagers about the Simon Company's plans and about the new Chipko Movement. The villagers formed an action committee and set up a continual watch over the approach to the forest. Simon Company agents who had already reached the area watched these preparations. After a few days, they once again retreated from the scene.

But the company wasn't ready to give up the trees, and its permit was good for six months. In December, more Simon Company employees arrived in Phata with a new strategy. They visited all the villages in the area, threatening the villagers with harsh treatment by the law if they tried to stop the tree felling. They also claimed that the Chipko leaders were only looking for bribes from the company.

The Simon Company agents were invited to present their viewpoint at a meeting called by Chipko leaders. Chandi Prasad was there. The agents tried to initimidate the mountain people with threats and insults, but it was no use. The villagers declared they were determined to save the trees.

As the meeting ended, word spread that the government was showing a movie that night in a nearby town. A movie is a special treat for the mountain people, so that evening many of the villagers and Chipko workers went into town to see it. When they arrived they found out the film van hadn't come — the movie had been cancelled. Since the mountain buses had already stopped running by that time of the evening, the villagers and Chipko workers stayed in town until morning.

Next morning they climbed onto the bus and headed back to the villages. When they got to Rampur village, they were dismayed to hear that men with axes and saws had been seen heading toward the forest. The Chipko leaders quickly organized a procession which marched toward the forest to the beat of drums. When the villagers reached the forest, they found that the lumbermen had run away — but they had left behind five fallen ash trees.

The villagers were dismayed to see the fallen trees. They soon resolved that the Simon Company would not remove the trees from the forest, and a round-the-clock vigil was set up. A few days later Simon Company employees tried once more to remove the trees, but they were forced to retreat by the presence of the Chipko people. After a week's vigilance, the Simon Company's permit expired. The company had failed to obtain a single tree.

Though the Chipko workers were elated by this victory, a much greater challenge was yet to come. A few months earlier, the Sangh workers had received a new reminder of the lessons of the Alakhnanda flood when another major river of the area, the Mandakini, flooded its valley. Experts and policy-makers in the plains were starting to notice that floods beginning in the Himalayas were becoming steadily worse. Some of them even saw the connection between human actions and the "natural" disasters.

But the awareness in some parts of the government failed to find its way to the people

managing the forests. Just months after the Mandakini flood, the Forest Department announced an auction of almost 2500 trees in the Reni forest overlooking the Alakhnanda River, the same river that had flooded in 1970.

Chandi Prasad quickly set out for the villages in the Reni area. A meeting in one village faced the mountain where the forest was to be cut, when the top portion of the mountain was already ravaged by tree felling and landslides. Chandi Prasad reminded the villagers of the floods of 1970. He asked if there wouldn't be more landslides and worse floods once the remaining forests on the mountain were cut down.

The villagers nodded agreement. But then one of them got up and said they themselves had just marked those trees for the Forest Department. Chandi Prasad was dismayed. In that case, he told them, they might as well have cut the trees themselves. The villagers protested: The Forest Department had *hired* them to do it — how could they refuse? Chandi Prasad asked if they would also cut down the trees if the Forest Department hired them to.

There was silence for a few moments. Then one of the villagers said they would not cut the trees. But how could they stop others from doing it? Chandi Prasad told them they could hug the trees. After some talk, the villagers agreed. And so did villagers in other villages Chandi Prasad visited. After Chandi Prasad left each area, two of his colleagues who lived there continued to spread the message of Chipko.

The auction was scheduled for the beginning of January (1974) in Dehra Dun, a city in the plains. Chandi Prasad went to Dehra Dun shortly before the auction. First he contacted Forest Department officials. He told them about the danger of floods and landslides that would come from cutting the forest and pleaded with them to cancel the auction. The officials ignored him.

Chandi Prasad next appealed to the lumber company agents gathering in the city. He warned them that the winning company would have to face the resistance of the Chipko Movement. The agents refused to take him seriously. They had heard about the Chipko Movement, but it was one thing to protect a few ash trees and another to save a whole forest.

The only people who gave Chandi Prasad a sympathetic hearing were a group of students. The students proposed to disrupt the auction, but Chandi Prasad couldn't approve of such methods. So instead the students printed up handbills and posted them around the auction hall. On the morning of the auction, Chandi Prasad stood at the door of the auction hall and pointed to the handbills as the company agents entered the hall. The response was the same as before.

At the end of the auction Chandi Prasad told an employee of the winning lumber company that the company would face the Chipko Movement at Reni, then he returned to Gopeshwar. Over the next few months, meetings and rallies were held throughout the Reni area to prepare the people for the coming struggle. In mid-March the first group of lumbermen arrived in a town close by the Reni forest to wait for the final permit to enter the area. The villagers and Chipko workers waited tensely for the confrontation.

A week later, government officials made a surprise announcement: The government would pay villagers for land taken over for military purposes after the 1962 war with China. Payment would be made in the town of Chamoli, some distance from Reni.

The villagers had been pressing for payment for fourteen years. They could not afford to lose this chance. The morning after the announcement the village men rushed to Chamoli to collect their money. Meanwhile Chandi Prasad — who had not heard about the announcement — was being kept in Gopeshwar by a visit from a high-level Forest Department official who had expressed interest in the activities of the Dasholi Gram Swarajya Sangh.

That morning the lumbermen along with Forest Department officials and a company agent climbed onto a rented bus and were driven from the town toward Reni forest. Shutters were drawn over the bus windows so no one could see in, though the departure of the village men had left the valley almost deserted. The bus stopped short of the village of Reni, and the men took a roundabout path to avoid the village.

A little girl spotted the men marching toward the forest. She ran to tell Gaura Devi, an elderly leader of the village women. Gaura Devi rushed around the village calling the other women away from their cooking. Within minutes about thirty women and children were hurrying toward the forest.

They soon caught up with the men, who had made camp and were preparing lunch. The women pleaded with them not to cut down the forest and told them what it would mean to the village if they did. They asked the men to finish their meal and then return to the village and wait to talk to the village men.

Some of the men seemed ready to respond to the women's pleas, but some others had been

AURPAN MISHRA

One of the drunks came staggering toward the women with a gun. Gaura Devi stood in front of him, bared her breast, and told him he would have to shoot her before she would allow the forest to be cut.

Gaura Devi

drinking. The drunk ones tried to take liberties with the women or cursed at them for trying to interfere with their work. One of the drunks came staggering toward the women with a gun. Gaura Devi stood in front of him, bared her breast, and told him he would have to shoot her before she would allow the forest to be cut.

At this the sober men decided that things had gone far enough. They started back down the path out of the forest. The women kept up their appeal to the drunken ones. Meanwhile, the women spotted a new batch of laborers moving up the path with bags of rations. Some of the women ran to meet them and pleaded with them to go back. The laborers agreed to leave the ration bags where they were and to leave the forest once they had finished the meal prepared for them. They were soon on their way back.

Finally the drunk men began to sober up and realized there were very few of them left there in the forest. They too started back, with the women helping to carry their tools — some distance behind. At one spot in the path there was a concrete slab bridging a gap left by a previous landslide. After passing over the slab the women used the laborers' tools to dislodge it and send it crashing down the slope, cutting off access to the forest.

All night the women sat by the severed end of the path, holding vigil over the forest above and the men huddled by their ration bags below.

The next morning the village men and Chipko workers arrived by bus. They had already learned about the government's deceit and about the women's surprise victory. Chandi Prasad assured the frightened company men and forest officials that the villagers meant them no harm but only wanted to save their forest. (When the women told the men their story, they didn't tell about the drunkenness of some of the men or about the gun, for fear the guilty ones would lose their jobs.)

Over the next month rallies were held at the site, and a constant watch was kept over the forest. Meanwhile the mountain women's story caught the attention of the Indian public and created an outcry for the protection of the Reni forest. The government responded to all this with official protests to the Chipko workers and public denunciations of the movement.

Finally Chandi Prasad was called to the state capital to meet with the Chief Minister (the Indian equivalent of a U.S. state governor). The Chief Minister agreed to set up a committee of experts to investigate the situation. When this was announced, the lumber company withdrew its men from Reni to wait for the committee's decision.

The committee took over two years to finish its report, but is findings were even better than the Chipko workers had hoped. The committee said that the Reni forest was a "sensitive area" and that *no* trees should be cut there or in a large section of the Alakhnanda watershed that Reni was a part of. On the basis of the report the government put a ten-year ban on all tree felling in an area of over 450 square miles.

The victory at Reni has been followed by other successes. In 1977 the Chipko workers learned that forests were being auctioned in an area next to the one protected by the government ban. They asked the Forest Department to send representatives along with Chipko workers to inspect the region. They also warned the Department that a Chipko action would be

YOGESH KUMAR

Alakhnanda River valley, where government timber practices led to disastrous floods

launched if the Department failed to take account of what it found there. After the investigation another one hundred square miles were added to the protected area.

In 1978 Forest Department officials reversed the order of events. They informed Chandi Prasad that they wanted to auction trees in two forests in other parts of the district. They asked him to inspect the forests and tell them if it was all right. The outcome was another forty square miles of forest saved.

Since 1975 the Chipko workers have not only been protecting forest slopes but have been restoring bare ones as well. Through 1978 they planted about 100,000 trees, covering about 1200 acres. Through this work they are finding out what trees and planting techniques work best in their region. The Chipko workers are also trying to develop methods of forest farming for their region, both to conserve the forests and to create employment.

The Chipko Movement has sprouted branches in most of the districts of the Uttarakhand, and it will likely spread to other regions as well. Conditions like those in the Uttarakhand are found throughout the Himalayas, both in India and in neighboring countries. The Chipko workers hope that movements such as theirs will slow the deterioration of the mountains and publicize the need for changes in forest policy. They say it will take a massive reforestation effort — funded and coordinated by the national government over decades — to save the Indian Himalayas as a home and source of forest resources.

Such an effort is vital not only to the mountain people but to those in the plains as well. India has a critical shortage of trees nationwide, so it relies heavily on the Himalayan forests for its wood and wood products. Also, floods in the plains, fed by waters from the Himalayas, are becoming more and more severe. The 1978 flood in Bihar was the worst in India's recorded history — thousands of people killed, one million homes destroyed, and millions of acres of farmland covered with sand.

The ecological issues in the Chipko Movement are vital, but Chipko is still more than an ecology movement. As Chandi Prasad puts it, the main goal of the movement is not saving trees but the right use of the forests. The movement continues to press for a complete remaking of forest policy. Besides the protection of sensitive mountain slopes, the movement demands that the resources of the mountain forests benefit the mountain people by providing jobs and by supplying survival needs. What is more, the movement insists that the mountain people be given an active part in managing their own forests.

Not that the Chipko Movement wants to save all the benefits of the forests for the mountain people. The Chipko people respect the needs of those in the plains for the products of the Uttarakhand forests, but they insist that even those needs can be better met if the forests are managed by those who live among the forests and care for them. For, in the end, the issues of ecology and community rights to resources are closely intertwined. In the Uttarakhand — as often elsewhere — outside control of resources has meant their irresponsible use and gradual destruction.

Though India gained its independence over three decades ago, the people of the Uttarakhand are still colonized. Now that is changing, as the mountain people raise their cry: "Let the forest rise and the forest dwellers rise!" ■

An American Chipko

by Andy Lipkis

READING ABOUT the Chipko movement and considering its applicability to forest issues in the United States, I am impressed both with the many similarities and some very basic differences between the situations in India and the United States.

Although the story of the struggle and resistance is moving and inspiring — and was probably totally necessary in the Chipko case — I favor cooperation and action as a means of creating awareness and change. I would like to think that we are moving into an age where more can be gained through cooperation rather than resistance. Besides, in modern America, direct action is only good for voicing protest and drawing public attention. It probably couldn't be used effectively to directly save trees, because our modern, efficient police would arrest and remove the protesters (or protectors) so the timbering operations could continue.

Very active citizens' movements for forest conservation and preservation over the past 100 years have resulted in the enactment of national laws as well as more stringent regulations that have been adopted by many individual states. Among other things, these laws provide people with an opportunity to intervene in questionable forestry operations. A restraining order can be fairly easily obtained by concerned citizens to temporarily halt a potentially damaging project until it is determined to be safe or within legal boundaries. Failure to meet environmental or safety requirements can permanently block a project. Provided these laws remain intact, confrontation won't be necessary.

Perhaps the most applicable aspect of the Chipko movement is its commitment to cooperative action, involvement, and caring. In the United States there are a number of groups whose work parallels these aspects of the Chipko's. Tree planting cooperatives such as the Hoedads and New Growth of the rural Pacific Northwest are probably most similar to the Chipko movement in that local people have organized themselves into collective groups to do forestry work that benefits the local area both economically and environmentally.

Another exciting similarity exists right in the heart of Los Angeles. A group known as the Tree People is helping to solve urban environmental problems by planting trees. The nonprofit organization involves thousands of volunteers from the city in planting trees and mobilizes them to help provide relief during flood disasters. I am the founder and director. The organization began eleven years ago when the U.S. Forest Service announced that smog from Los Angeles was killing trees in the forests surrounding the city. According to 1970 Forest Service reports, the trees were dying so quickly (approximately 40,000 per year) that they projected that most of the trees would be dead by 1990 if nothing were done to alleviate the smog problem or replace the trees that were dying with smog-tolerant varieties. Upon learning that the Forest Service didn't have such a smog-tolerant tree planting program, I began planting trees with summer camp friends. Our beginning effort was quite small — only about 20 trees. However, we felt that we were making a difference, and that felt good.

Encouraged by the success of the first steps, I organized a program that involved most of the summer camps and thousands of young campers in the San Bernardino National Forest in tree planting and environmental education. With a staff of a few other college friends, we brought trees and tools to the camps, led the campers in an educational orientation, and then planted in areas where trees had been destroyed by smog or forest fires. The program grew into a full-time operation that involved schools and civic groups planting trees within the city. After several years we obtained our headquarters — an abandoned fire station nestled in the hills that bisect Los Angeles. We had amassed a good supply of shovels and tree planting tools, and we further developed our expertise in mobilizing and training volunteers.

Several months after we moved into our headquarters, Los Angeles was hit by a flood. Prolonged heavy rains resulted in landslides and flooding, loss of life, and millions of dollars in property damage. We mobilized a volunteer rescue operation of 800 volunteers to sandbag homes, lay plastic on hillsides, and help people dig mud out of homes that couldn't be protected. Two years later Los Angeles was hit by an even more severe flood. Although the disaster caught government agencies unprepared, the Tree People were ready. We had built a network with ham radio operators supplying communications and four-wheel-drive clubs providing transportation into the hillside areas, which were inaccessible to cars because of mudslides and high water. We mobilized, equipped, and trained nearly 3000 volunteers who worked ten days straight, day and night, saving or providing aid to 1200 homes.

As in India, Los Angeles' flood problems were mainly the result of poor land use practices. Homes had been built in creek bottoms and in the paths of old landslides. Removal of vegetation, paving, and soil compaction added to the problem by reducing the absorption capacity of the soil. After two major disasters, the city is still unprepared for what likely will be a third. Homes continue to be built without adequate protection, and there is still no adequate government-sponsored preparedness,

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Andy Lipkis is 26. He was 15 when he started Tree People.

For further information contact Tree People, 12601 Mulholland Drive, Beverly Hills, CA 90210. –SB

prevention, or relief organization, or even a plan. Tree People, however has been providing hillside homeowners with trees and information about how to protect their homes from both flood and fire. All of Tree People's disaster services were provided without funding or reimbursement from government sources. After each disaster, the Los Angeles community — both corporations and individuals — chipped in to replace all the lost or damaged equipment and help cover the costs of the operation.

After eleven years of service planting over 150,000 trees and involving as many people in education programs, Tree People has recently taken a new focus: creating the Los Angeles Urban Forest. It is our new goal to plant 1 million trees in Los Angeles before the 1984 Olympics there. We are intending to involve the entire community in planting trees as a way to help improve air quality, conserve energy, and produce food locally. The trees will be both smog-and drought-tolerant, so they won't require the importation of additional water into the L.A. area. After years of researching how to clean up air pollution in Los Angeles in order to meet the Clean Air Act standards, the city's planning department developed a plan that recommended the planting of 1 million trees over the next 20 years, at a cost of hundreds of millions of dollars. By the year 2000 the trees would be filtering 200 tons of particulate smog out of the air each day, getting L.A. 80% of the way to meeting its clean air goals. Appropriate planting of shade trees will conserve energy used for cooling and thus also help reduce air pollution. And to bring it all together, there is a large variety of fruit and nut trees that will grow in Los Angeles that can help build local food self-sufficiency.

The goal is to involve the entire community. To be a success, we hope to encourage as many people as possible to plant and care for their own trees. In this way there will be no major maintenance burden added to the city agencies, and the citizens of Los Angeles will know that they created their forest. We realize that tree planting is a small first step and in and of itself is not enough to solve all the problems we are tackling. However, involving so many people in such a massive operation will build a tremendous amount of awareness, which will hopefully lead to more caring and a willingness to participate in other projects aimed at healing the urban environment.

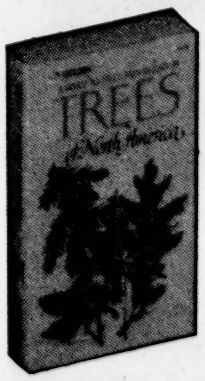
The work begins with that very simple first step — planting a tree. ■

Trees of North America

The guide to travel with. Surpasses all old and new guides (Audubon, Peterson) with its fine, crucial drawings and distribution maps. More info than **Tree Finders.** *Not clumsy like* **Knowing Your Trees.** *Keep it in your glove compartment.*
—Peter Warshall

Trees of North America
(A Guide to Field Identification)
C. Frank Brockman
1968, 1979; 280 pp.

$5.95 postpaid from:
Golden Press
Western Publishing Co.
1220 Mound Avenue
Racine, WI 53404
or Whole Earth Household Store



SOFT PINES

EASTERN WHITE PINE *(Pinus strobus)* needles, in bundles of 5, are 3 to 5 inches long, soft, and flexible. They remain on the branches one to two years. Fine white lines of stomata are on two surfaces of each needle. The stalked, curved cones are 4 to 8 inches long (usually 5), and their scales lack spines. On young trees the bark is smooth and gray; on mature trunks it is broken into small rectangular blocks. This largest conifer in the Northeast grows 75 to 100 feet tall, 2 to 4 feet in diameter, with a pyramidal crown of whorled, horizontal branches. Prefers moist, sandy loam soils; often forms pure stands.

Maximum oxygen tree?

Dear Stewart Brand,

As a long-time fan of **The Whole Earth Catalog** (five supplements, **The Last** and **The Next** are on my shelves) let me ask you this question, unanswered by everybody else I've tried.

What should one plant that yields, for a given area of ground, the maximum quantity of oxygen?

My best guess is a tall, narrow, evergreen tree, since deciduous trees lose their leaves for so much of the year. But so far I've been unable to establish that anyone has conducted research into this matter. You, if anyone, will have contacts who can tackle the inquiry and feed an answer back to me. I'm in no special hurry — I believe Gaea has resources we haven't yet ruined (or Gaia, as you persist in calling her . . .) — but I would rather do it in my lifetime, and I'm 47, and I want to plant trees that will serve the future as the oaks for New College did (**NWEC** p. 77).

While I'm writing, let me commend: **Extraordinary Popular Delusions and the Madness of Crowds** by Charles Mackay (1932, 1980; $7.20 postpaid from Crown Publishers, One Park Avenue, New York, NY 10016) — an amazing summary of how people can be driven crazy by transient fads — and **Possible Worlds** by J.B.S. Haldane (1927; $13.50 postpaid from R. West, P.O. Box 6404, Philadelphia, PA 19145), which includes his famous essay "On Being Finite," written when he was told he had a fatal cancer.

Sincerely,

John Brunner
South Petherton, England

Anyone got an answer for the author of **Stand on Zanzibar?**

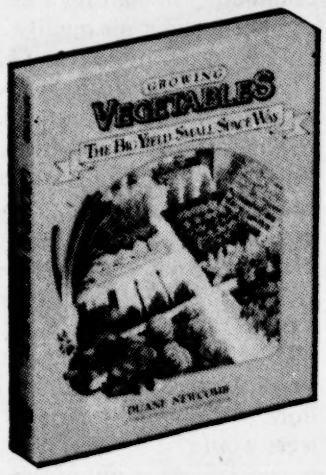
—SB

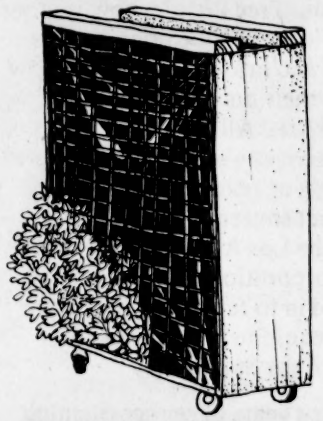
Growing Vegetables the Big Yield/Small Space Way

If a tiny suburban lot with asphalt driveway and concrete patio is frustrating your green thumb, this beginner's book is full of solutions. Put your tomatoes in a plastic trash basket, stick your spinach in a vertical chicken wire wall of soil, and let your pumpkins sprawl and set fruit on the garage roof. The real limit to urban vegetable growing is sunlight, not space. —*Richard Nilsen*

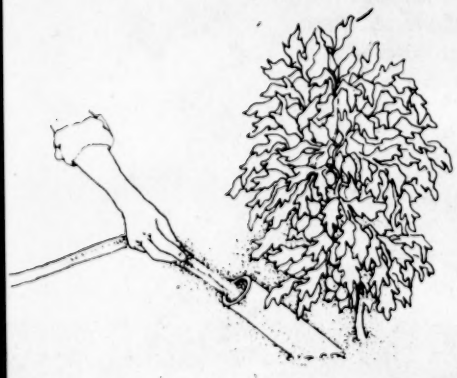
Growing Vegetables the Big Yield/Small Space Way
Duane Newcomb
1981; 218 pp.

$9.45 postpaid from:
J.P. Tarcher, Inc.
9110 Sunset Boulevard
Los Angeles, CA 90069
or Whole Earth Household Store

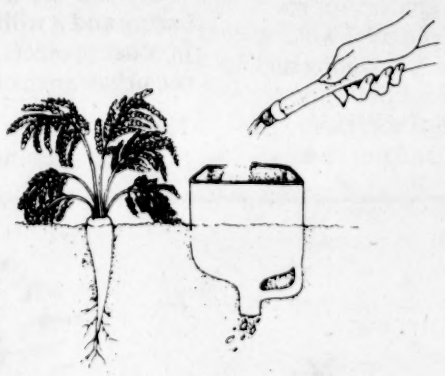




A Bookshelf Planter



Hand water-saving techniques



Inverted plastic jugs provide even more water.

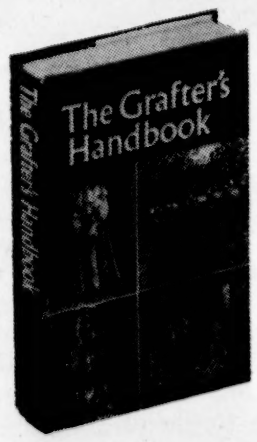
One clever way to combine the container and vertical approaches to gardening is to use bookshelf planters. Bookshelf planters can be placed in the garden or on a patio and will produce an abundant harvest of lettuce, spinach, and other leafy vegetables. To construct your own, build top and bottom frames of two-by-twos and connect them with two-by-twelves. Close the open sides with 4-by-4-inch wire mesh. Your planter can be virtually any size, but a width and height of 4 by 5 feet generally allows you to plant and harvest without much difficulty. Line the planter with black plastic, fill with soil mix, and cut slits in the plastic, centering them in the mesh squares. Leave the top open and water from there and through openings about halfway down. Before planting, wet the mix. Set transplants, not seeds, through the wire mesh and insert individual peat pots firmly into the planting mix. Feed every two weeks with liquid fertilizer containing at least 10 percent nitrogen.

The Grafter's Handbook

An incredible variety of techniques for making different plant tissues grow together receive detailed and precise treatment in this classic book, now in its fourth edition. Superb illustrations make this professional's handbook accessible to the serious amateur. The author has distilled half a century spent at the East Malling Research Station in England into a model for a superior how-to book. It all begins with a steady hand and a sharp knife.
—*Richard Nilsen*
[Suggested by Jamie Jobb]

The Grafter's Handbook
R.J. Garner
1959, 1979; 319 pp.
4th Edition

$16.95 postpaid from:
Oxford University Press
16-00 Pollitt Drive
Fair Lawn, NJ 07410
or Whole Earth Household Store



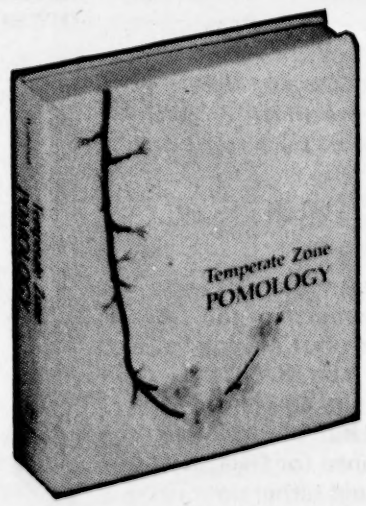
Tomato wedge-grafted on potato
Lycopersicum esculentum **on** Solanum tuberosum **yielding two useful crops**

Temperate-Zone Pomology

Fruit, nut, and berry production are now highly mechanized industries, as this college text shows. Physiology is well presented and detailed, so if your question begins with "why," this is a good place to look for answers. There is far more information here than a non-commercial orchardist will need, making this book an excellent candidate for your local rural library. —*Richard Nilsen*
[Suggested by Jamie Jobb]

Temperate-Zone Pomology
Melvin N. Westwood
1978; 428 pp.

$29.95 postpaid from:
W.H. Freeman and Co.
660 Market Street
San Francisco, CA 94104
or Whole Earth Household Store



The most severe low temperature injury to fruits and nuts usually occurs in late fall or early winter. Under such conditions, tissue maturity is of prime importance. Any condition that prolongs growth delays the physiological "hardening off" process. Some factors that delay or prevent tissue maturity and cold acclimation are high nitrogen nutrition, late cultivation, and irrigation, early defoliation, heavy cropping, and early pruning.

Common Sense Pest Control for the Home and Garden

Integrated Pest Management for the Home and Garden

The first customers for integrated pest management were commercial farmers, since they had the most to gain, or lose. These two pamphlets represent a kind of trickling-down of these techniques into our backyards and homes. **Common Sense** *is keyed to California, has beautiful line drawings, and treats the pests individually.* **Integrated Pest Management** *is keyed to Illinois, has no illustrations, and treats individual food crops and the pests that like to eat them. While awaiting a definitive book on this subject, these two are a useful beginning.* —*Richard Nilsen*

Common Sense Pest Control for the Home and Garden
Helga and William Olkowski
1979; 38 pp.
free from:
Center for the Integration of Applied Sciences
1010 Grayson Street
Berkeley, CA 94710

Integrated Pest Management for the Home and Garden
Robert Metcalf et al.
1980; 41 pp.
free from:
Institute for Environmental Studies
University of Illinois
408 South Goodwin Ave
Urbana, IL 61801

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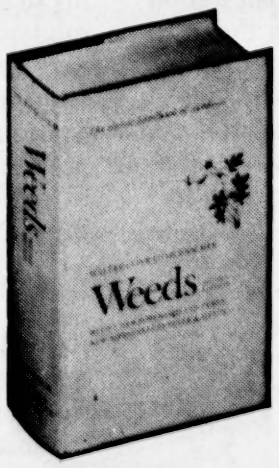
Remember that natural enemies require a certain minimal pest population in order to eat and reproduce. IPM specialists speak of this as the necessity to "leave a pest residue." Seeking to obtain 100% control by pesticide applications is counter-productive.
—**Integrated Pest Management for the Home and Garden**

Weeds

How nice to see some publisher besides Dover revive an old gem of a book like this. Out of print for 15 years, it describes 571 weeds of the northern U.S. and Canada. Muenscher was a botany professor at Cornell and wrote the first edition in 1935. Changes in nomenclature since then have been updated, but what hasn't are the mechanical methods for controlling each of the weeds discussed. Before the endless herbicides of the chemical era, we did manage to feed ourselves and survive quack grass and cocklebur. Learn how here. —*Richard Nilsen*

Weeds
Walter Conrad Muenscher and Peter A. Hyypio
1935, 1980; 586 pp.
2nd Edition
$29.50 postpaid from:
Cornell University Press
124 Roberts Place
Ithaca, NY 14850
or Whole Earth Household Store



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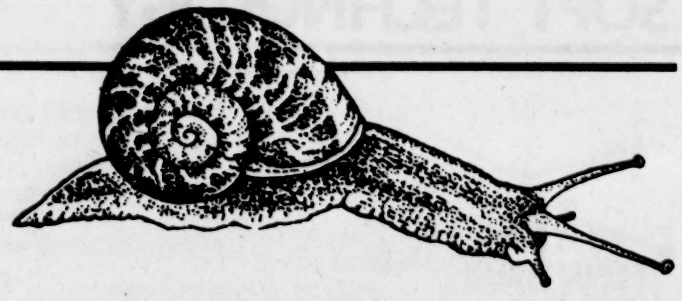
It is not uncommon for weed seeds to retain their germinating power ten, twenty or even forty years after they have been buried in the soil.

●

A thick stand of a rapidly growing crop competes with the weeds for water and light to such an extent as to prevent their top growth and weaken their roots. The smother crops most commonly used are alfalfa, sorghum, sweet clover, buckwheat, rye, rape, millet, soybean and sunflower.

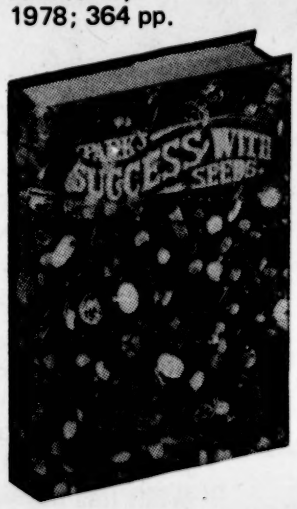


The brown garden snail, Helix aspersa, **was introduced into California in the 1850's as a food source. Today it is widely poisoned as a U.S. pest while at the same time, cooked and sauced, it is being imported from Europe as a gourmet delicacy.**
—Common Sense Pest Control for the Home and Garden

Park's Success with Seeds

Park's treatment is encyclopedic, covering most vegetables and ornamentals. Included for each entry are germination requirements, botanical and horticultural descriptions, and color photographs of the mature plant and of the seedling. As far as I know this is the only book that has seedling pictures. —*W.R. Okie*

Park's Success with Seeds
Ann Reilly
1978; 364 pp.
$11.80 postpaid from:
George W. Park Seed Co.
P.O. Box 31
Greenwood, SC 29647
or Whole Earth Household Store



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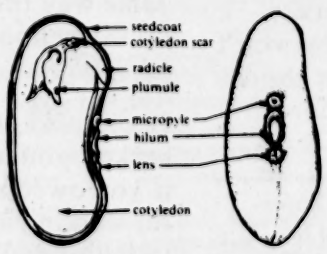
Chiastophyllum oppositifolium
SILVER CROWN PERENNIAL
(Cotyledon simplicifolia) SILVER RUFFLES
Crassulaceae, native to Caucasus. Zone 7.

Uses: Ground cover, rock garden, house plant.

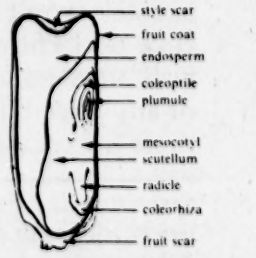
Habit: Creeping and rooting branches carry succulent, sedum-like leaf rosettes and ¼" yellow bell-shaped flowers in drooping racemes in late spring.

Germination: Sow outdoors in late fall or early spring for late spring germination. Indoors, maintain a temperature within the medium of 55° during germination which takes 30 days. Do not cover the fine seeds.

Culture: Outdoors, plant in full sun in a light, dry, well drained soil. Indoors, grow at 55° nights and 70° days in a light soil that is allowed to dry out between waterings. Place in filtered or diffused sunlight.



Cross Section Dicot Seed



Cross Section Monocot Seed

ESCALATORS

by Steve Baer

A LOT OF PEOPLE JOG. I read somewhere that they make up a large percentage of the population – 10% or 15%. When you drive down the street you pass the joggers in their suits. They aren't going anywhere. You are going somewhere in your car; the jogger is going in a circle. He has to go home to change out of his suit. I read in **Parade** magazine that Senator Nelson actually runs to work; he is an exception.

What I want to know is why the joggers who evidently long for exercise won't walk upstairs. How do I know that they won't walk upstairs? Go to an airport or any large building where there are escalators and stairs side by side. No one takes the stairs; they all cram onto the escalator. I take the stairs – this little bit of exercise makes me feel better, and I search the crowd gliding up parallel to me on the escalator for the 10% of joggers who I know are there. What has happened to the 10% who are joggers? Why do they get onto the escalator? I think that it has something to do with manners developed between man and his machinery, and most people believe that it isn't good manners to turn down the escalator. Haven't you ever felt pressured into giving the bellboy your suitcase at a hotel even when there is only one suitcase and you would rather carry it yourself and save the tip? I think people react to the escalator the way they do to the bellboy; it's there to do a job and people walk onto it the same way they hand their bag to the bellboy. They feel obliged to.

If you walk up the stairs, people look at you in a funny way, as if you owed some explanation for walking instead of riding. I kind of feel I do. I have even hurried unnecessarily to justify myself – showing that I couldn't wait for the pokey escalator.

The escalator is really not like the bellboy; you are not expected to tip it; it doesn't even know that you are there. What is the pressure then that herds the joggers away from the stairs onto the escalator? If a machine can do something and a man turns it down because he would rather do it himself, he has a moment of mechanical embarrassment as he chooses to revert to the premechanical behavior. He's acting like a child who doesn't want to grow up. Or, maybe worse, walking up the stairs could be a political statement – maybe you'd guess that the man on the stairs is also a radical or a vegetarian or only eats organic foods or is some other sort of crank who everyone knows isn't really pulling his share in creating a more modern, efficient, mechanized easy living world. Instead of seeming energetic as he might by running in circles or doing pointless calisthenics, he is just being rude to a machine and thus insulting our entire culture.

What about the joggers who run beside the road instead of riding in a car? They have managed to be excused for this rudeness to the machine mainly because it is well known that they are going in a circle and they are going to return to their car to give it its exercise. They also wear special suits so that you'll understand that their running alongside the cars is not meant as any kind of competition to the car or other bad manners. ■

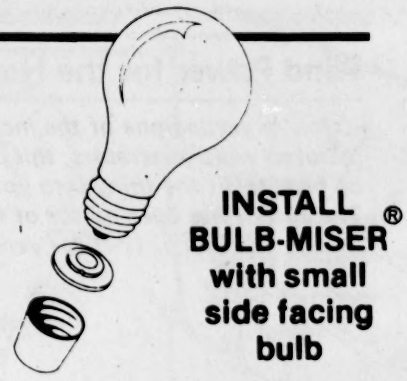
Steve Baer is proprietor of Zomeworks, the solar device firm in Albuquerque, New Mexico. This is a piece of what may eventually be titled "A Mechanic's Notebook."
–SB

Bulb Misers

This little gizmo is terrific! It's one of those NASA spin-offs that justify, in one fell swoop, the whole space program. At our exhibit at Marineworld we use eight 150-watt bulbs for illumination. These lights are 30 feet overhead and require bringing in a cumbersome ladder each time one needs changing. Since the exhibit is lighted 24 hours a day, I was changing bulbs every six to eight weeks. With the Bulb-Misers installed that's been reduced to every four to six months . . . amazing but true. —Steve King

Bulb Misers
Manufactured by
American Electro-
Dynamics Corporation
1 Penn Plaza, Suite 2830
New York, NY 10001

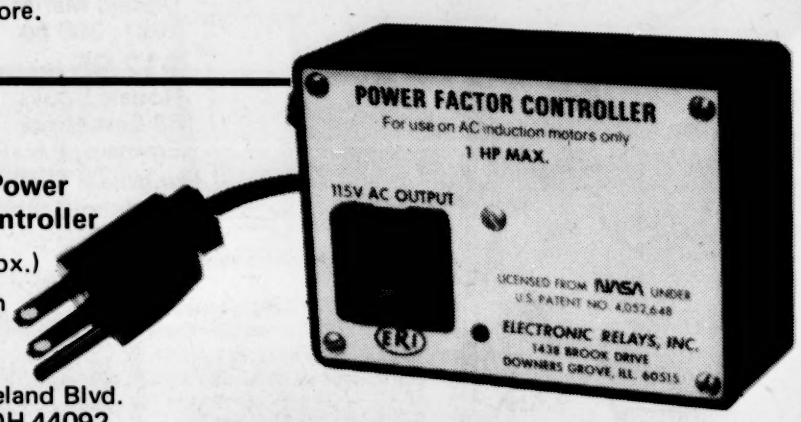
$3 each postpaid from:
Earth Works
P.O. Box 2660
Alameda, CA 94501
or check your local
hardware store.



Dr. Watt Power Factor Controller

Another spinoff from NASA, this little box can save up to 50% of the electricity normally used by AC electric motors up to one horsepower. Usability of the motor is not affected. It's intended for motors that run a lot but are not always under heavy load, such as a washing machine or a drill press. It won't help a continuously loaded motor such as those turning fans or pumps or refrigerators. The thing works well and is priced fairly. With two billion small electric motors in this country, a device such as this must be seen as an important invention. —J. Baldwin

Dr. Watt Power Factor Controller
$39 (approx.)
Information
$1 from:
EnerCon
30048 Lakeland Blvd.
Wickliffe, OH 44092



Touch 'n Foam

Whether you're retrofitting that leaky old barn or trying to do the new one right, you'll be faced with mouseholes and crannies that are hard to insulate with batts or wadding. This "instant foam" does the deed. It's especially good around pipe and wire holes and around window support framing. My can of the stuff didn't plug up or otherwise behave obnoxiously and really did save a lot of time and hassle. Contractors can get it in big cans too. No Freon involved. — J. Baldwin

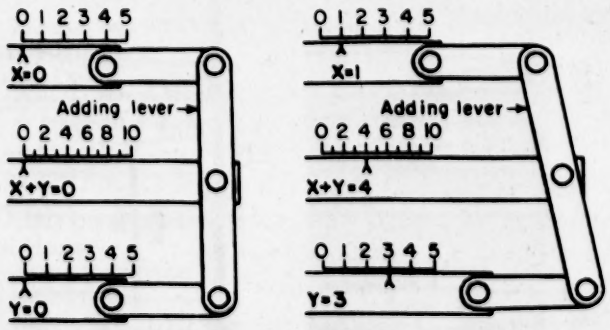
Touch 'n Foam
$7 (approx.)
at your hardware store
Information
free from:
Convenience Products
4205 Forest Park Blvd.
St. Louis, MO 63108

Basic Machines and How They Work

Like a Swiss Army Officer's Knife of the mind, the knowledge in this book is indispensible. I was fortunate to have a grade-school physics teacher named Mr. Knapp who taught me about half the basics presented here; I use that knowledge daily.

The book is a Dover reprint of a Navy manual, so most of the principles are illustrated with basic devices aboard a modern ship. These are the fundamentals of technological life: levers, block and tackle, wheel and axle, inclined plane, screw, gears, work and power, force and pressure, hydraulic machines, internal combustion, power trains, and basic computer mechanisms.

A wonderful book for replacing daily bafflement with daily fascination and ingenuity. —SB
[Suggested by Dick Rubenstein]



Adding lever

Basic Machines and How They Work
Bureau of Naval Personnel
1965; 161 pp.
$4 postpaid from:
Dover Books
180 Varick Street
New York, NY 10014
or Whole Earth
Household Store

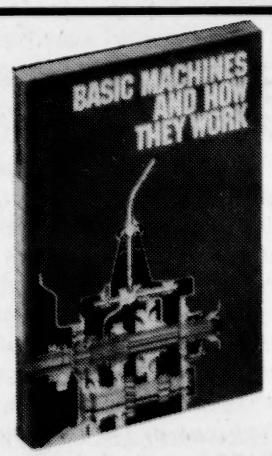


Figure 1-15 —
An improvised drill press

↑

Figure 1-15 shows you a couple of guys who are using their heads to spare their muscles. Rather than exert themselves by bearing down on that drill, they pick up a board from a nearby crate and use it as a second-class lever.

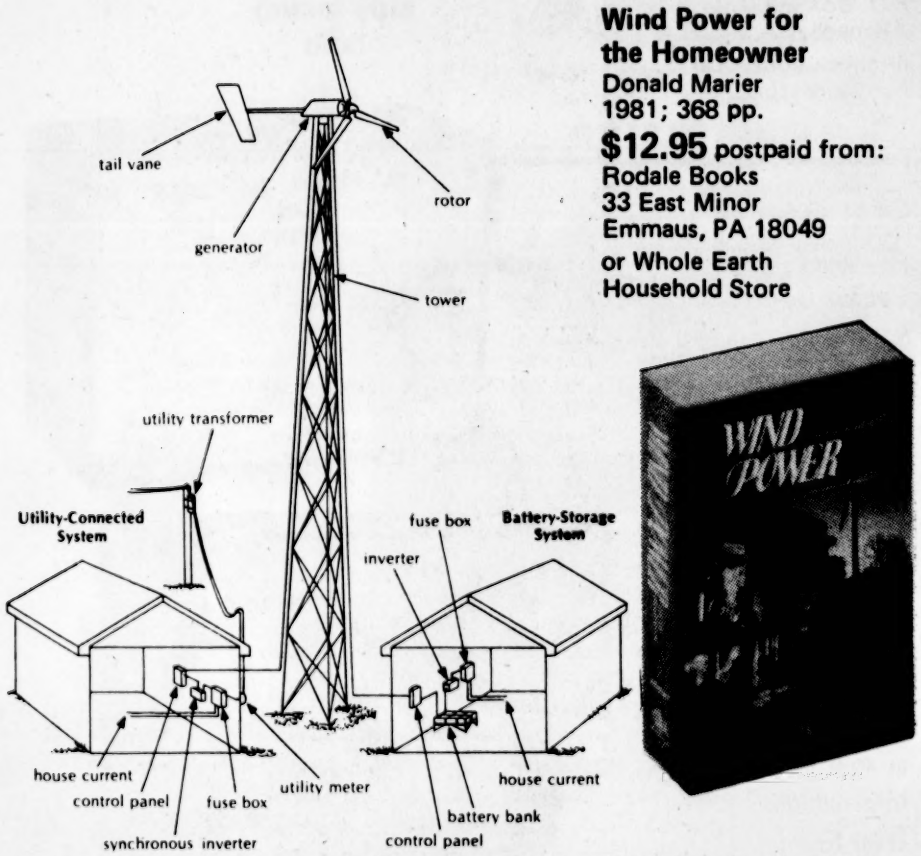
If the drill is placed half way along the board, they will get a mechanical advantage of two. How would you increase a mechanical advantage if you were using this rig? Right. You move the drill in closer to the fulcrum. In the Navy, a knowledge of levers and how to apply them pays off.

Wind Power for the Homeowner

If you're getting one of the increasing number of manufactured wind generators, this is now the book of choice on how to fit the thing into your home, grid, and life. The author has been editor of **Alternative Sources of Energy** *(NWEC p. 174) for years and has seen it all.*

—SB

Wind Power for the Homeowner
Donald Marier
1981; 368 pp.
$12.95 postpaid from:
Rodale Books
33 East Minor
Emmaus, PA 18049
or Whole Earth Household Store



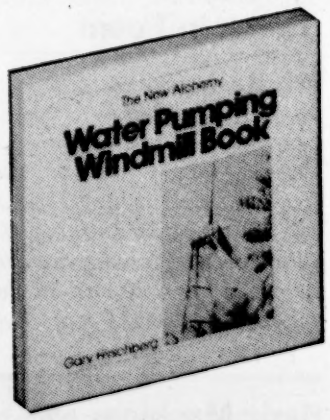
Basic Components of a Wind System — Components include a rotor, generator, tower, wiring, control panel, and storage batteries for direct current (d.c.) or a synchronous inverter for alternating current (a.c.).

The New Alchemy Water Pumping Windmill Book

If you want to find out how to do something right, talk to someone with real, dirty-hands field experience . . . or read their book. This manual reads like it should have a greasy thumbprint on every page. The basics are presented in simple language illustrated with clear photos, diagrams and tables: how to determine your water needs, how to design a complete water system, what components to use and how to install them. Choosing a commercial windmill is discussed in a way that takes the mystery out of the manufacturers' catalogs. Gary's experience shows as he explains the little things that make the difference between a reliable water system and a disaster — things you need to know such as how to prevent losing your pumps down the well and how to prevent it all from freezing in winter.

Topping off all this are complete plans for building your own sailwing waterpumper from easily available materials and parts. This design has proven to perform in low-wind conditions, and it costs far less than store-bought machines. Like the rest of this book, the plans are detailed right down to brand names and bolt sizes. I know of nowhere else you can find information of this sort collected in one place. *—J. Baldwin*

The New Alchemy Water Pumping Windmill Book
Gary Hirschberg
1981; 160 pp.
$4.95 postpaid from:
Brick House Publishing Co.
34 Essex Street
Andover, MA 01810
or Whole Earth Household Store



Carter wind generator

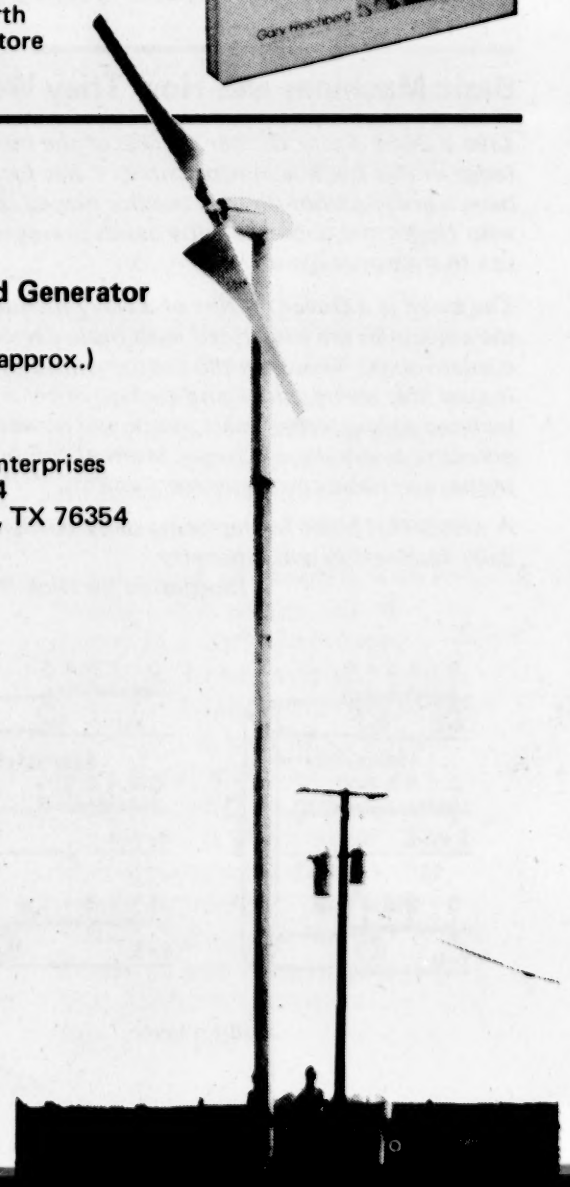
At present (late 1981) this is considered the best wind generator on the market. A great deal of its sophistication and intelligence is designed right into the fiberglass blades. They bend back and stall themselves out when the wind gets too high, but they can start generating power in a 7½ mph breeze. The capacity is prodigious — 25 kilowatts in a 26 mph wind (peak is 30 kw in 30 to 40 mph). The product is 220 or 440 volt 60-cycle single or 3-phase AC electricity, which you can use directly in the house or sell directly to the utility company. (Under PURPA — the Public Utilities Regulatory Policies Act of 1978 — the power company has to buy locally produced power at their best rate. Check and see how far along your state is in implementing the act. Here in California a Carter wind generator on a hill one mile from my desk is selling high quality juice to Pacific Gas & Electric every day.)

The Carter package is large — 32-foot diameter blade-sweep, 60-foot-high pole tower — and complete. The whole generating unit is in the pod at the top of the tower, and the gin pole for raising the thing is permanently attached to the tower so you can lower the whole rig in any given five minutes. The system is built for exceptionally low maintenance.

Reportedly Carter is working on designing smaller and larger units, but for now this $22,000 job is the only model available. *—SB*

[Suggested by Wayne Van Dyck]

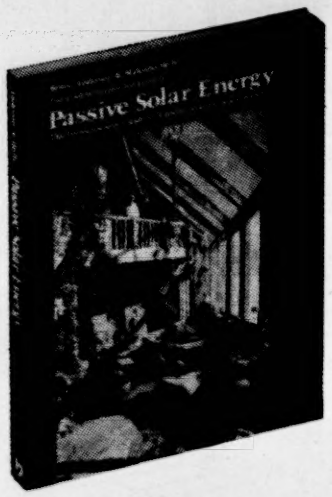
Carter Wind Generator
Model 25
$22,000 (approx.)
Information
free from:
Jay Carter Enterprises
P.O. Box 684
Burkburnett, TX 76354



Passive Solar Energy

Two of the best-known pioneers in the business have conspired to write this simple, mercifully non-technical primer for those who just can't hack the 500-page design manuals. They pay particular attention to passive cooling, a subject not covered well elsewhere. The simplicity is mostly in the way things are put; even professional architects might find this book a good place to start designing. The main course is topped off by a dessert of color photos of Good Examples and big, clear Malcolm Wells drawings of certain critical construction details. With books like this around, there is little excuse left for the solar scoffers. —J. Baldwin

Passive Solar Energy
(The Homeowners Guide to Natural Heating and Cooling)
Bruce Anderson and Malcolm Wells
1981; 197 pp.
$9.95 postpaid from:
Brick House Publishing Co.
34 Essex Street
Andover, MA 01810
or Whole Earth Household Store

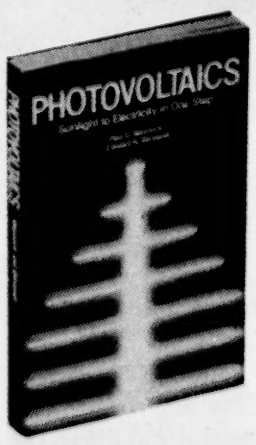


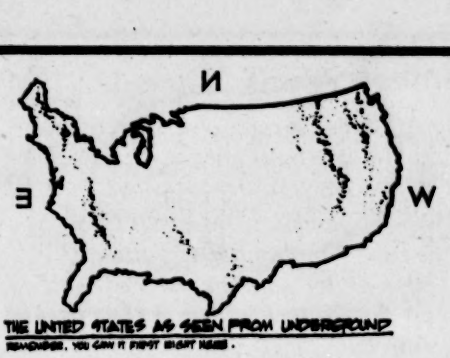
Photovoltaics

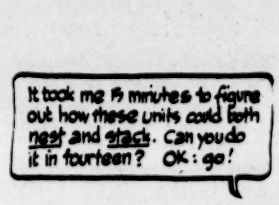
The two authors seem to have (miraculously) combined the best features of a mini-encyclopedia and a hard-to-lay-down novel. Whatever you may desire in a book on electricity-from-sunlight, you will find it here. For example, you will find a truly clear exposition (best I've ever seen) of the photovoltaic effect itself; the various kinds of semiconductor materials used; the competing manufacturing processes; names and addresses of the manufacturers; the main applications of photovoltaics to home, industry, transportation, etc.; the decreasing costs and increasing use; general prospects for exponentially increasing use in the next ten to twenty years; marketing strategies; governmental policy and legislation; national, international, and societal implications; the history of photovoltaic research. You name it, this book has it!

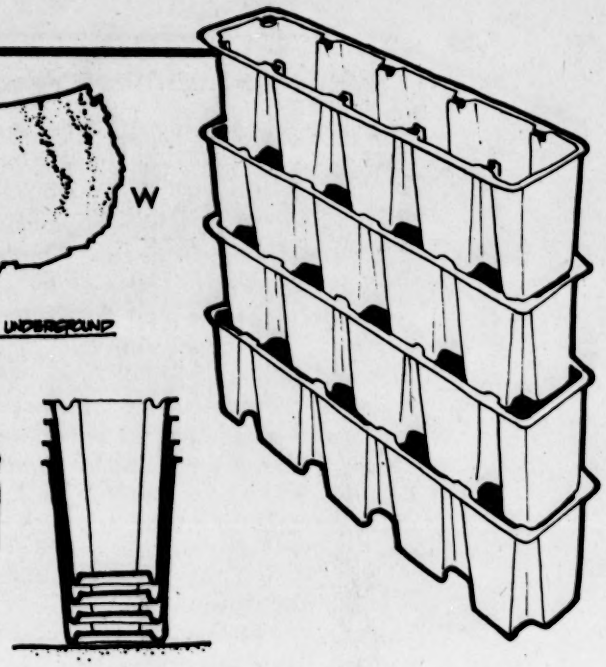
Some main predictions are: 1) Photovoltaics will be fully economic for massive private use before a major utility can design, purchase, and install its next new nuclear reactor. 2) Photovoltaic systems installed on the roofs of residences in the U.S. will be fully economic — delivering electricity that costs five to ten cents per kilowatt hour — by 1986 without tax rebates, and by 1984 with a 40% tax rebate and Solar Bank financing. 3) If we seriously begin to adopt photovoltaics now, as much as 30% of the nation's electric energy can come from this source by the year 2000. This is three times the market penetration of the nuclear option today.
—William Shurcliff

Photovoltaics
(Sunlight to Electricity in One Step)
Paul D. Maycock and Edward N. Stirewalt
1981; 222 pp.
$10.95 postpaid from:
Brick House Publishing Company
34 Essex Street
Andover, MA 01810
or Whole Earth Household Store









Modules of cast fiberglass-reinforced polyester, from One Design, Inc., nest inside each other during transport. After the house is built, they are stacked atop each other and filled with water. Each module is about 8 feet long, 2 feet high, and 16 to 20 inches wide.

Photovoltaics commentary

I'd wait a year or two. Yes, you can get panels that can be arrayed in sufficient numbers to power your inefficient household appliances, or even an entire school. Photovoltaics have been used to power large irrigation pumps. They work, but they're expensive (still) and I keep hearing sad stories of failure. (Most panels, by the way, fail totally when one small segment fails — all the little wafers are in series.) The price has been coming down fast and continues to fall at a rate that makes me suspect that I'd be owing more on a panel bought today than a brand new one would cost three years hence. Moreover, the photovoltaic business is fraught with breakthroughs and rumored breakthroughs. Texas Instruments is reported to have a cell that is truly cheap, and just last week I heard of a Canadian inventor who has managed to make window glass that'll generate electricity. In short, we aren't there yet. On the other hand, I'll admit that my own humble abode, an Airstream Trailer wired 12 volts, is powered by a modest panel feeding a battery. My needs are modest too. Most people require more electricity.

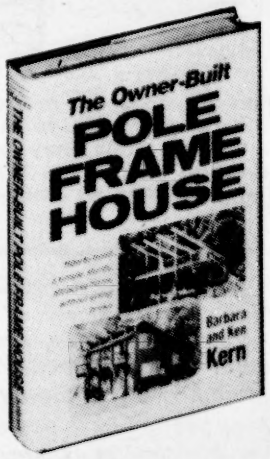
Watch **Popular Science** *(***NWEC** *p. 158) or other "new inventions" magazines for latest developments. It'll likely be worth the wait, for photovoltaics offer many advantages: simple, quiet, few building code problems, no moving parts, easily protected from bad weather conditions, easily mounted on a wide variety of buildings, potentially mass producible in huge quantities. In California, some power companies are considering owning the panels that are mounted on your house. The company gives you a discount for the privilege of using your roof, and they'll buy any power you don't use. That way, their generating ability grows as the number of houses rises, and the power comes on strongest on the hottest sunny days when your air conditioner is hungriest, thus taking some of the "peak load" off the utility. We're going to see lots of schemes like that. Soon. Meantime, if your needs are modest, you can buy a panel for about $15 a watt. I can't recommend a brand yet, and if I did, the information would probably be obsolete by the time you read this.* —J. Baldwin

The scuttlebutt I hear consistently recommends the Arco panels (1 ft. x 4 ft., 35 watt, 15.5 volt feeds a 12 volt system comfortably), price up to $450 from local dealer or Arco Solar, 20554 Plummer Street, Chatsworth, CA 91311. —SB (Summer '81)

The Owner-Built Pole Frame House

Ken Kern, who has helped so many people build their own homes, is at his mellow best in this comprehensive manual. And that best is pretty damned good, too. I'm sure that many conventional carpenters will find Ken's ideas radical — he uses 1-by lumber structurally and generally avoids "stick-built" techniques. Post-and-beam lovers may be a bit miffed too — no huge beams and fancy time-consuming (and beam-weakening) mortises and tenons. Building inspectors may have qualms too. But the structural principles are well proven and have many advantages for the home builder. They're cheaper, stronger, and use less lumber — all things we need right now. I regard this book as a harbinger of what will soon become known as "modern wood building practice." — *J. Baldwin*

The Owner-Built Pole Frame House
Barbara and Ken Kern
1981; 179 pp.
$18.20 postpaid from:
Charles Scribner's Sons
Special Sales Dept.
597 Fifth Avenue
New York, NY 10017
or Whole Earth Household Store



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Farmers build with poles because it is a strong, easy, cost-effective method. The girt system of wall construction, which works well in pole frame building, makes possible the use of large sheets of inexpensive wall cover, such as corrugated metal or plywood. Stud wall construction requires much more carpentry and material expense.

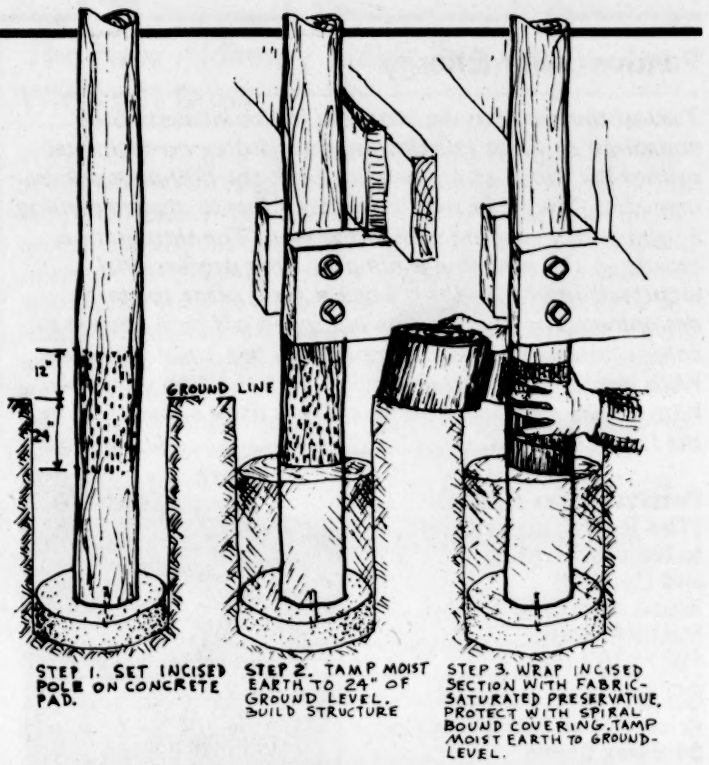


Figure 42. Bandage treatment

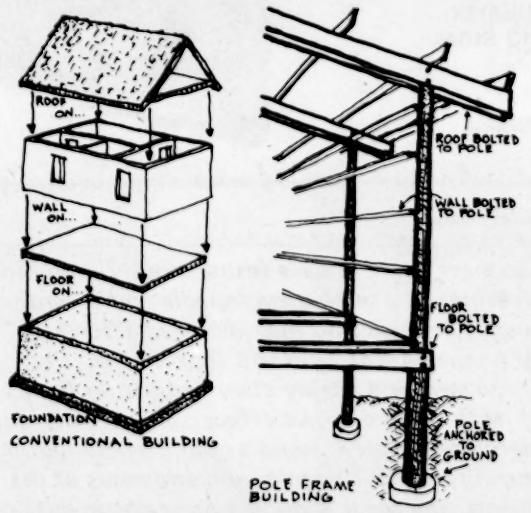
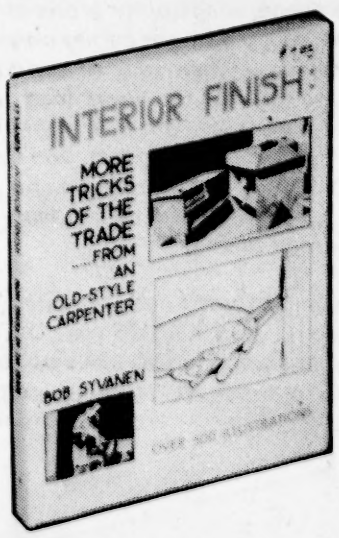


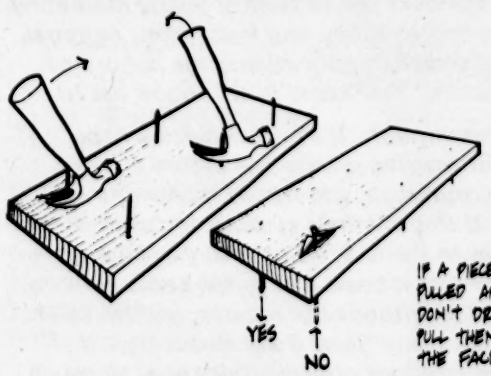
Figure 6. Structural systems compared

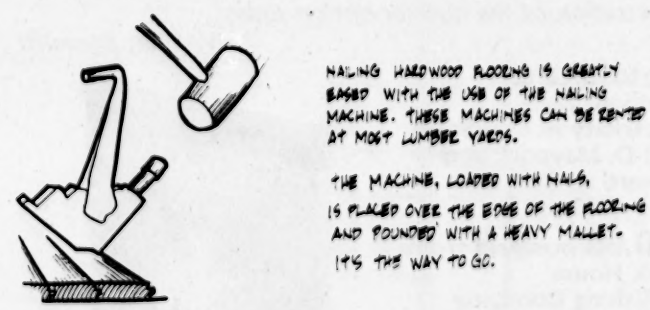
Interior Finish

*With his earlier books (***Carpentry** *and* **Drafting, NWEC** *pp. 221 and 224), Bob Syvanen here completes a trilogy that explains and illustrates the kinds of details that most experienced carpenters simply carry around in their heads. As he says, "A good framer is worth two finish men," but since there are a lot of fast sloppy framers wailing away with 22 oz. wafflehead hammers knowing that* <u>they</u> *won't have to come back and trim out what they're erecting, interior carpentry can often be an introduction to the fine art of fudging. Textbooks assume the world is square and plumb; this book describes the real world that is warped and slightly out of kilter, and shows you how to make it work and look right.* —*Richard Nilsen*

Interior Finish
(More Tricks of the Trade)
Bob Syvanen
1981; 126 pp.
$7.95 postpaid from:
Bob Syvanen
179 Underpass Road
Brewster, MA 02631
or Whole Earth Household Store







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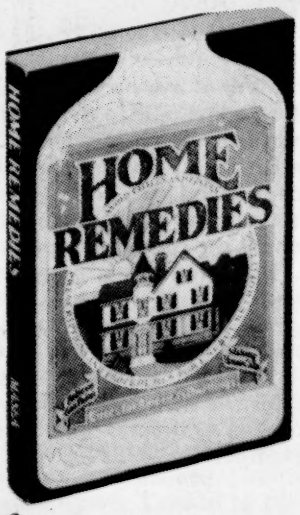
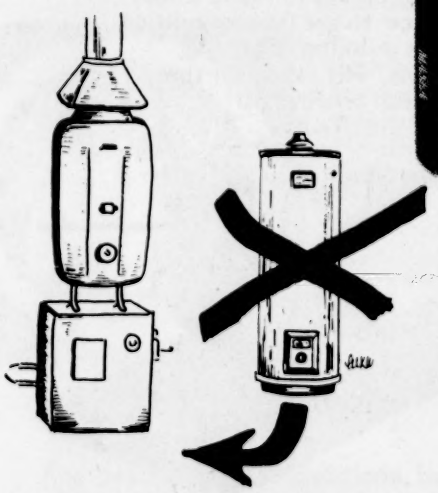
It is a house you are building and not a piano.

Home Remedies

Waddaya do with your old and leaky humble abode when running it costs more than you can reasonably endure? What strategy will pay? What ones work? What can you do yourself? How likely is slow damage from inexpertly installed insulation? How should you be thinking about all this? Find out here folks. This book is the gleanings from the First National Retrofit Conference in 1980. Lots of people talking from many points of view. You'll learn a lot here, mostly from fieldworkers of noticeable experience. —J. Baldwin

Home Remedies
Tom Wilson, Editor
1981; 253 pp.
$10 postpaid from:
Mid-Atlantic Solar
Energy Association
2233 Gray's Ferry Ave.
Philadelphia, PA 19146
or Whole Earth
Household Store





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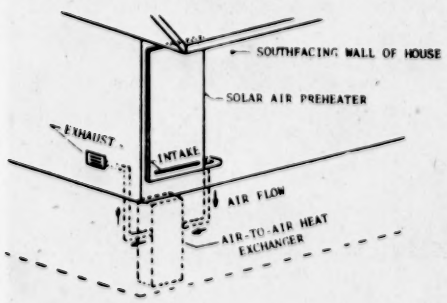
By themselves, gas-fired demand water heaters save 30-50 percent over conventional gas water heaters, even more over electric. The thermostatically controlled models are perhaps the perfect booster for solar systems.

Saskatchewan air-to-air heat exchanger plans

This device works about the same as the Lossnay (**NWEC** *p. 234), except it removes the humidity from the building. This makes it good for bathrooms and greenhouses, though ice buildup inside this exchanger can be a (solvable) problem. You can build it yourself from these proven plans. These plans also make a good place to start your own experiments.* —J. Baldwin

An Air to Air Heat Exchanger for Residences
R.W. Besant,
R.S. Dumont
and D. Van Ee
1980; 15 pp.

$1 postpaid from:
U Learn
Extension Division
University of
Saskatchewan
Saskatoon, Saskatchewan
S7N 0W0 Canada



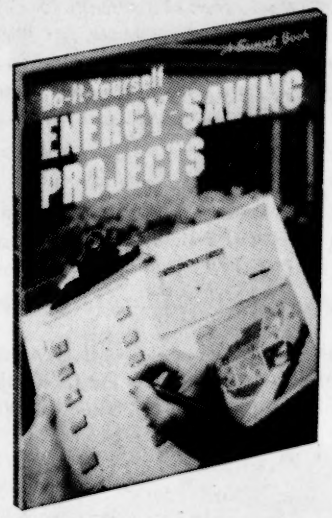
Positioning of solar air preheater on south wall of dwelling

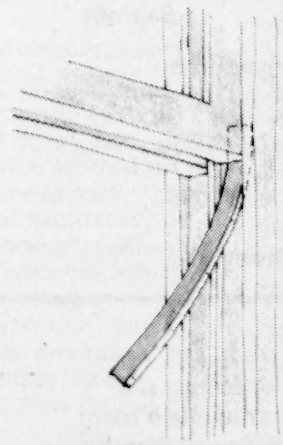
Do-It-Yourself Energy-Saving Projects

By far the most effective, least expensive (and also least spectacular) thing you can do to reduce the energy expenditure of your house is (fanfare, applause, 100-gun salute) IMPROVE THE INSULATION!

Energy-Saving Projects *is a 1981 Sunset book with their usual flair. It covers insulation along with tricks to improve windows, heaters, air conditioners, major appliances, etc. — a full spectrum.* —SB

Do-It-Yourself Energy-Saving Projects
Bob Thompson, Editor
1981; 96 pp.
$3.95 postpaid from:
Lane Publishing Company
Menlo Park, CA 94025
or Whole Earth
Household Store





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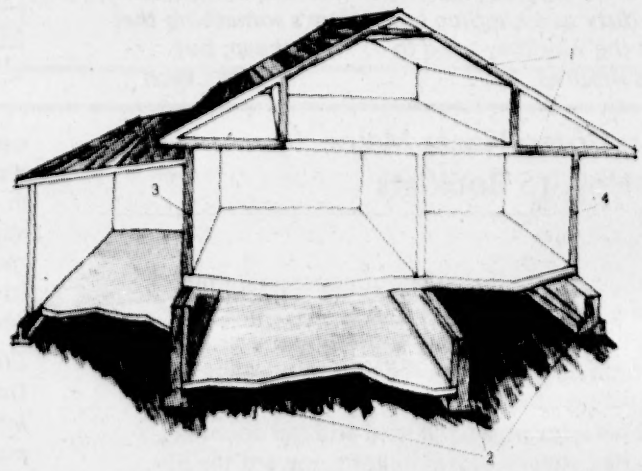
Weatherstripping sliding windows

Sliding windows typically call for spring or cushion metal-weatherstripping secured all around the sash. In vertically mounted units, secure an extra strip across the outward face of the lower sash's top rail. This seals the gap between it and the upper sash. In horizontal windows, the extra strip fastens to the inner unit, but is still hidden from view on the outer face.



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Where to begin

The most effective sequence for insulating an existing building in cold-winter regions is this: 1. the roof above a finished attic or the ceiling below an unfinished (and vented) attic; 2. under floors; 3. walls between heated rooms and unheated spaces like a garage or basement; and 4. exterior walls.

This sequence is supported by studies showing that heat losses in an uninsulated 1500-square-foot building follow this pattern: 45 percent through the ceiling, 20 percent through the floor, and 12 percent through walls. (The remaining 23 percent is lost through window glass and air infiltration.) The first three in the series also are usually the most accessible places. In mild-winter regions, underfloor insulation drops in importance.

The Movable Nest

How many times have you moved to a different house or apartment? If you are the average Mr. and Mrs. Front Porch, you move once every three years. Tom Schneider, who is as fidgety-footed as any of us, has worked out many ways of making the move easier and the new nest nicer. He's collected many imaginative, proven ways of making an otherwise drab or characterless abode into a pleasant place to be. Nifty drawings (by him) make the ideas easy to use. He gets right down to the critical details: How to Nail Something to the Wall without Losing Your Damage Deposit, for instance. How to turn one bedroom into two. How to make temporary walls without studying five years as an apprentice carpenter. How to make the bathtub into a shower. The tools are discussed along with how to use them even if you never have before, and there is a fine bibliography that includes sources of materials and useful hardware. All in all a marvelous job, and done in a tone of voice and upbeat style that'll make your next move more pleasant than you might have thought possible. —*J. Baldwin*

The Movable Nest
Tom Schneider
1981; 185 pp.

$8.95 postpaid from:
Delta Books
c/o Montville
Warehousing Company
Change Bridge Road
Pine Brook, NJ 07058
or Whole Earth
Household Store

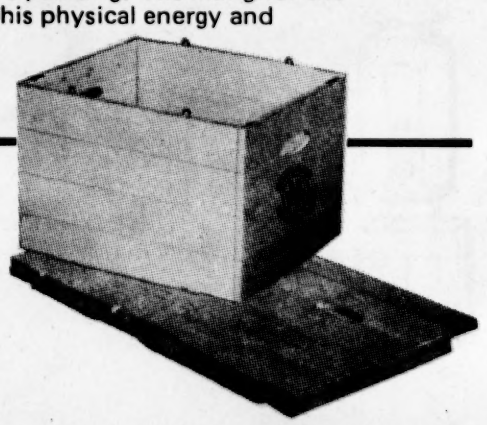
●

Richard is one of my most fastidious friends. This is his approach to moving into a new apartment: He unpacks almost nothing. Then for three, four, seven solid days — whatever it takes — he scrapes, sands, fills, and paints the new place, forcing it in one overbearingly intentional motion toward pure, white cleanliness. In going over every inch of the place he experiences two positive benefits. First, the apartment becomes *his*. From this day forward he knows that all the dirt will be new dirt, *his* dirt. But more importantly, he comes to really know every nook and cranny of the place, to see its possibilities. His fertile, *spatially* adept mind is thinking, planning, designing all the while he's painting. His liking for the place grows as he invests his physical energy and his imagination.

Hubbard Wooden Folding Box

As I'm sure you've noticed, the trouble with most substantial containers is that they take up just as much room empty as full. Not so the "Hubbard Wire Sewed Wooden Folding Box" patented in 1898 and still manufactured in west-central Wisconsin by a cooperative of five woodworkers. Opened, it's as solid a box as you'll ever heft, but due to the unique wire lacing and flat metal hinges it folds to 1½" thick for storage. Constructed of basswood supplied by area farmers, a Hubbard wears well, feels good, and even smells good. I own five: four new one-bushel boxes and a 50-year-old 1½ bushel box which still sees regular duty as a kindling box. Here's something that is made just the way they used to . . . not cheap, but they'll last a lifetime. —*Peter Leach*

Hubbard Wooden Folding Boxes
Brochure and price list
free from:
Hubbard Folding
Wooden Box Company
P.O. Box 36
Downing, WI 54734



No.	Inside Dimensions, inches			Weight Crated Per Dozen	PRICES — PER BOX	
	Length	Width	Height		1 box	12 boxes
½ (bushel)	13	7½	10½	70 lbs.	17.85	16.40
1 (bushel)	16	13	10½	115 lbs.	19.70	18.15
1½ (bushel)	24½	13	10½	140 lbs.	23.75	21.85

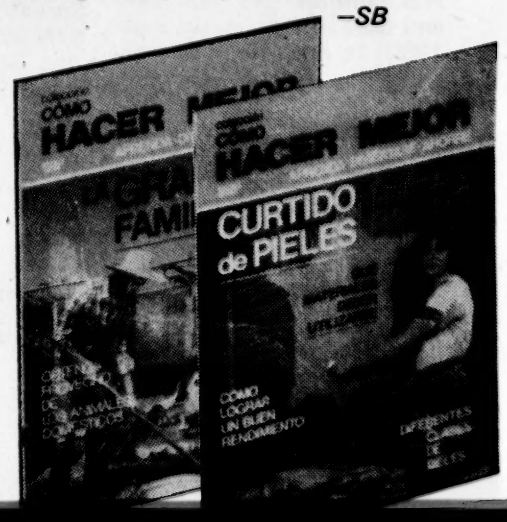
Colección Cómo Hacer Mejor Mexican How-to Booklets

Luis Lesur wrote us:

Almost all the existent books about appropriate technology were intended for the technic, the promoter, the technical intermediary, not for the final user. We decided to produce information on appropriate technology in a way understandable for the final user, in our case the people who works the land and the country people who had emigrated, in millions, toward the big cities. Peter Gillingham from the Intermediate Technology Development Group in San Francisco, suggested me the use of "fotonovela" or photo novel model because the people was familiar with that kind of media. Finally we did a magazine or booklet that could be sold in ten pesos in color, with a design that remember a photonovel, about technology, accessible for the Mexican families in the rural areas. Now we print 130,000 copies weekly (that for Mexico is a lot) and sale everywhere through the newspapers' stands of all the country.

Like the fine **Donde No Hay Doctor (Where There is No Doctor, NWEC** *p. 326), this series should be translated into English. The presentation is utterly clear and compelling, and the range is enormous — Corn Cultivation, Raising Chickens, Raising Rabbits, Vegetable Gardening. Using a Sewing Machine, Tanning Hides, etc., etc. 65 titles so far.* —*SB*

Colección Cómo Hacer Mejor
(Aprenda, Diviértase, Ahorre)
Luis Lesur
10 pesos/issue
($2/issue mailed to U.S.)
from:
Libros y Revistas
Mier Y Pesado 128
Mexico 12, D.F.
Mexico



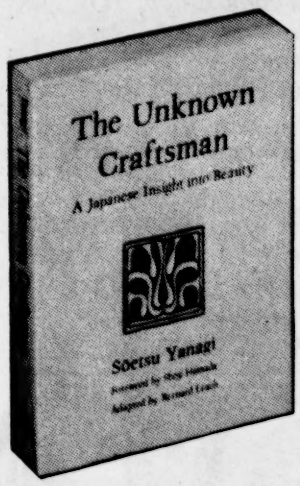
The Unknown Craftsman

Like a swift loving slap across the face.

The author is the founder of the Japan folkcraft movement — National Treasure craftspeople and all that. The translator is Bernard Leach, high lama of deep pottery (his **A Potter's Book** *is in* **NWEC,** *p. 255) and 50-year friend of Sōetsu Yanagi. The message is that simplicity and essence and material and use and utter craft are all facets of the same transparent core truth. That's so easy to forget that this brief book is rapidly acquiring a towering reputation.* —*SB*

The Unknown Craftsman
(A Japanese Insight into Beauty)
Sōetsu Yanagi
1972; 230 pp.

$16.45 postpaid from:
Kodansha International
Harper and Row
Mail Order Department
10 East 53rd Street
New York, NY 10022
or Whole Earth
Household Store



Rain cape, kugo **grass. Iwate Prefecture.**

- *Shibui* beauty, the beauty of the Tea ceremony, is beauty that makes an artist of the viewer.

- Rather than in precious and refined forms of art, it is amongst the odds and ends of things hitherto scorned or derided, amongst objects of unstressed and ordinary everyday life (*getemono*), that the norm of health may be found. By health, I mean to point at the honest quality, the form and feeling that is in full accord with use, which is the very seeing eye of craft. The bad handling of material, the over-complicated procedures of technique, over-employment of decoration, slick skills, one-sidedness of personality, over-self-consciousness — these are all forms of disease for the simple reason that they do not fit the purpose of use.

↑

Any pattern, if it is a good one, naturally has an element of the grotesque, since it is a reinforcing of beauty — an exaggeration, one might say, without deceit. A pattern, rather than presenting the thing as it is, is a vivid representation of what the thing could never be. Thus, though not a literal depiction, it achieves a verity that transcends realism.

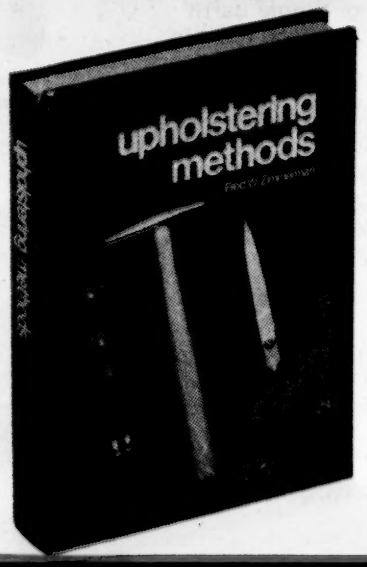
- Nature must be freely at work in the mind when anything is well made. Though painstaking efforts may have their contribution to make in carrying out a work, more astonishing is the effect that "no-mindedness" has upon it. One gains greater insight into nature by open trust rather than by attempts at intellectual understanding.

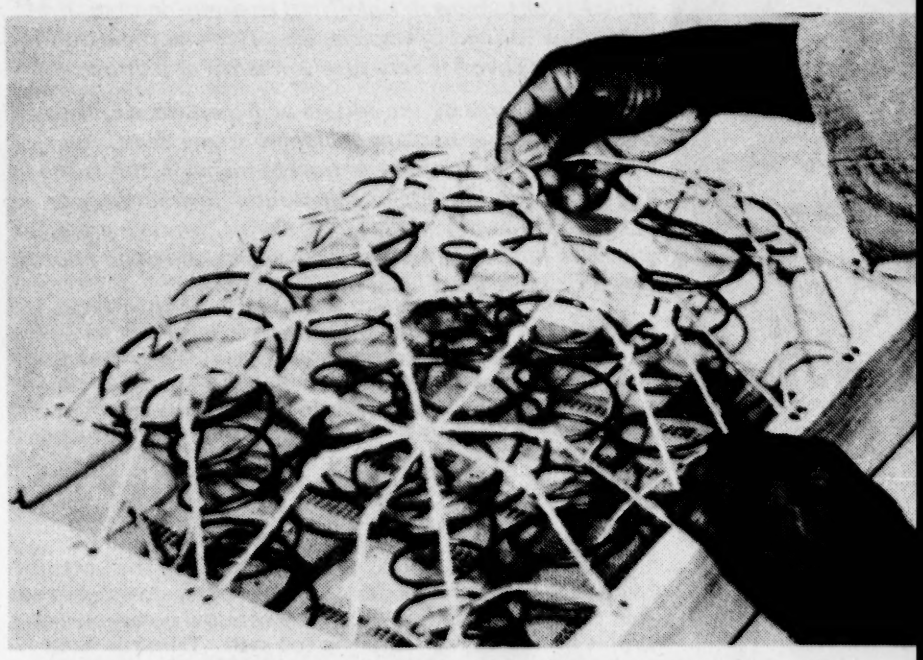
Upholstering Methods

This book says it is for beginners, but clearly you have to be a pretty gutsy beginner to tackle upholstering by yourself. Zimmerman has done his best to make it painless. The step-by-step method and illustrations are logical, and he uses the method I like best in cookbooks — get all your ingredients first, read through the recipe, then start. I recommend you start first with a little chair, not that ornate Victorian loveseat. And don't try to do it in your living room while you have to live around it. It takes a lot longer than it looks like in this book.
—*Evelyn Eldridge-Diaz*

Upholstering Methods
Fred W. Zimmerman
1981; 192 pp.

$12 postpaid from:
Goodheart-Willcox Co.
123 West Taft Drive
South Holland, IL 60473
or Whole Earth
Household Store





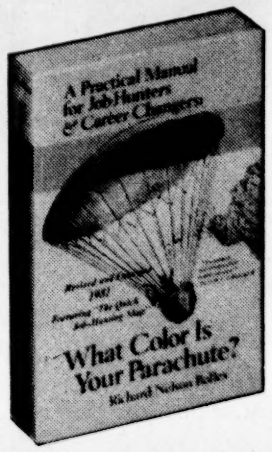
Tie clove hitches or overhand knots at each spring and intersecting twine.

What Color Is Your Parachute?

In a domain positively viscous with lame books, this perennial best-seller has no serious competition. It is updated annually (that's impressive), it is cheery for a reader who probably could use some cheer, it has sound, detailed advice for an all-important task that is well-served with a bit of skill. —SB

[Suggested by everybody]

What Color Is Your Parachute?
(A Practical Manual for Job-Hunters and Career-Changers)
Richard Nelson Bolles
1981; 320 pp.
$7.45 postpaid from:
Ten Speed Press
P.O. Box 7123
Berkeley, CA 94707
or Whole Earth Household Store



THINGS TO BEWARE ABOUT NEWSPAPER ADS

- Key No. 1: You must decide that job-hunting will be for you a full-time job (unless you are currently employed, in which case you will still give it every spare hour possible); and that you will use group support in your job-hunting as much as you can.
Key No. 2: You must decide just exactly what you want to do.
Key No. 3: You must decide just exactly where you want to do it, through your own research and personal survey.
Key No. 4: You must research in some depth the organizations that interest you and then approach the one individual or committee in each organization who has the power to hire you for the job that you have decided you want to do.

The Complete Book of Locks, Keys, Burglar and Smoke Alarms, and Other Security Devices

Home Security

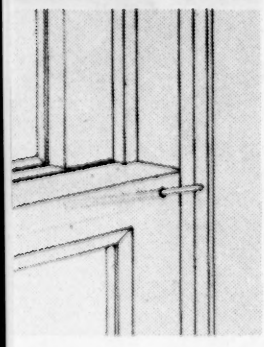
The Complete Book of Locks *provides you with the information you need to decide what sort of alarms, locks, or other security equipment fits your needs. Many similar books throw in superficial chapters on dogs, firearms, how to fight off rapists, etc. This one sticks to the subject and covers it very nicely. Plenty of pictures.*

Home Security *is by the editors of Time-Life. If, after reading the other book to decide what you need, you realize that you don't know how to install it, this is the book for you. It contains step by step instructions for the installation of various locks, alarms, window grates, etc. Well illustrated with clear diagrams and good photos. Contains a few good ideas missed elsewhere.*
—Walt Noiseux

The Complete Book of Locks, Keys, Burglar and Smoke Alarms, and Other Security Devices
Eugene A. Sloane
1977; 320 pp.
$7.95 postpaid from:
William Morrow and Co.
Wilmor Warehouse
6 Henderson Drive
West Caldwell, NJ 07006
or Whole Earth Household Store

Home Security
William Frankel, Editor
1979; 136 pp.
$11.53 postpaid from:
Time-Life Books
541 North Fairbanks
Chicago, IL 60611
or Whole Earth Household Store

A good lock is useless if installed on a weak door. Here an interlocking deadbolt lock held fast while the door was chopped through. —The Complete Book of Locks



- **Locking a window with a nail.** Drill a 3/16-inch hole through the top of the bottom sash and into the bottom rail of the top sash. Angle the hole slightly downward so that the nail cannot fall out if the window is rattled and drill it at least ½ inch into the top sash. Trim the head from a 10-penny nail with wire cutters so that the nail is just out of reach when slipped into the hole. Keep a magnet near the window to retrieve the nail and unlock the window. —**Home Security**

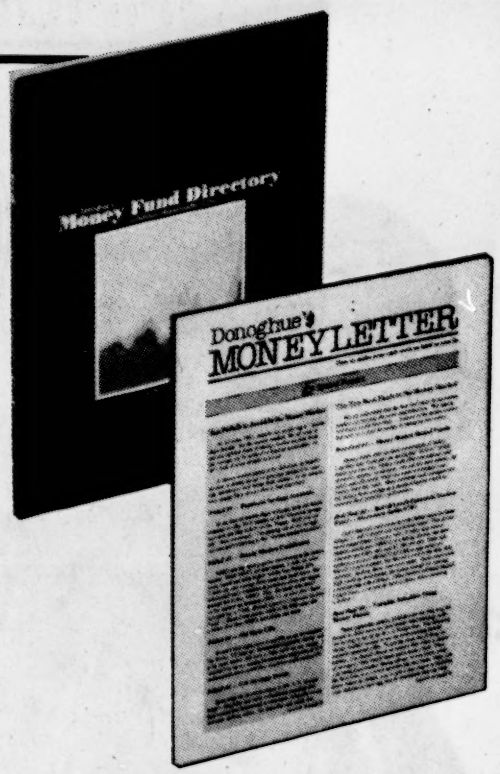
When dollar bill is removed, transmitter signals a silent alarm to a central receiver. Money transmitters like these are used as hold-up alarms in banks and stores. —The Complete Book of Locks

Donoghue's Money Fund Directory

Donoghue's Moneyletter

If you are investing or using money you have to be using a money fund. The **Directory** *lists the ins and outs of different money fund rules, payout procedures, average yields, and their investments. I've changed funds based on this list. The* **Moneyletter** *provides current updates.*

—Michael Phillips



Donoghue's Money Fund Directory
William E. Donoghue, Editor
Annual; 32 pp.
$12 postpaid

Donoghue's Moneyletter
William E. Donoghue, Editor
$87 /year (24 issues)
both from:
Donoghue's Money Fund Directory
P.O. Box 540
Hollister, MA 01746

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Best Deal #4 — Merrill Lynch's Cash Management Account (CMA)

Here's another Merrill Lynch product. But what can you say to an investment product that earns money market interest on every penny in your brokerage account that's not invested elsewhere, allows you to charge items and services on a special VISA card, allows you to get cash advances — in minutes — from thousands of banks all over the world, and even lends you money when you overdraw your cash account? Granted, CMA is not for everyone. You need $20,000 in cash or the equivalent amount in securities to open an account. CMA gives you the admission ticket to the "bank of the future," as the president of Citibank once called Merrill Lynch.

Best Deal #5 — Money Fund Checking

For a small business account or for individuals' larger personal bills, or even just to fund a checking or NOW account, there is simply no service available to consumers that allows them to earn a money market rate of return on check float. (Money funds also allow subsequent investments, unlike other money market investments.) So you can earn high yields on the money you would ordinarily keep in a checking account in order to maintain adequate funds for incoming checks. Special commendation should go to the following funds which offer $250 minimum check amounts instead of the normal $500 checking minimum: *Money Market Management, NEL Cash Management Account, John Hancock Cash Management Trust, Dollar Reserves* and *INA Cash Fund, Inc.* All require $1000 minimum initial investments except *INA Cash Fund, Inc.*, which requires $2500.

—Donoghue's Moneyletter

Stock mutual funds

Dear Editor:

I am baffled by a statement in Christopher Stinson's article "Investing Successfully" in your current issue (Summer '81). Mr. Stinson says that "over 80 percent of all managed stock based mutual funds do worse than the stock market average." This is quite untrue. I attach a table showing results of four different periods from which you will see that these funds on average have beaten the market handsomely, in the short, the medium and the longer term. They have also far outdistanced the cost of living increase and indeed have beaten almost everything else available to the average investor.

As Jane Bryant Quinn says in **Everyone's Money Book**, one of the books recommended in the article, "mutual funds are the very best investment vehicle for the average person."

I hope you will take the opportunity to correct this error.

Best wishes,

Reg Green
Investment Company Institute
Washington, DC

Investment Performance to the Beginning of 1981

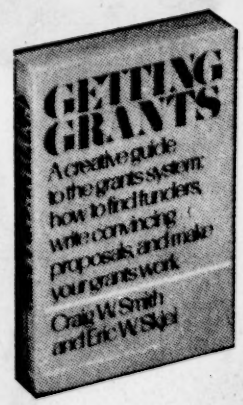
	S&P 500 (Stock Market Average)	Common Stock Mutual Fund Average
1 year	up 32.5%	up 34.5%
3 years	67.2%	96.3%
5 years	91.4%	156.4%
10 years	130.8%	168.9%

Figures were calculated by the Investment Company Institute from individual fund data supplied by Computer Directions Advisors, Inc. They include the reinvestment of dividends and capital gains.

Getting Grants

While **Bread Game** *is out of print and a new version is being produced this is the best book in the "getting" field. It is also the most complete. A lot of good advice, a little wisdom, and many superb examples.*

—Michael Phillips



Getting Grants
(A Creative Guide to the Grants System: How to Find Funders, Write Convincing Proposals, and Make Your Grants Work)
Craig W. Smith and Eric W. Skjei
1980; 286 pp.

$6.45 postpaid from:
Harper and Row
Mail Order Department
10 East 53rd Street
New York, NY 10022
or Whole Earth Household Store

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The first grant search of the Center for Independent Living was a resounding success. Applying to HEW on its own, it received a $54,000 training grant. The organization has faltered once or twice since then but has never looked back.

An unmistakable élan characterized the early years of CIL, a sense of urgency and diversity that could at times be shocking to an unconditioned outsider: dozens of people in powered wheelchairs rolling through the halls of the CIL headquarters, a former used car dealership on Berkeley's infamous Telegraph Avenue; conferences on the evening news; impromptu meetings with other segments of the handicapped world, with the blind and the deaf; and a tangible, growing conviction that the hour of the handicapped had arrived, one of the last of the many waves of revolutionary fervor and consciousness raising that Berkeley was ever to witness. The first wave of what was to become a solid, highly diverse, articulate *community* of, by, and for the handicapped, an altogether new cultural phenomenon, was mounting.

•

There are four kinds of credibility that will strengthen your proposal:

- Nonprofit, tax-exempt status.
- Track record.
- Letters of support.
- Evidence of community support.

CLAY

JERRY WAINWRIGHT

Each of us embraces a face of death, an attitude toward life.

by "Zero"/Ramon Sender Morningstar

Once upon a time when I was actively creative instead of passively, I set out to sell buttons which asked the 1966 question, "Why haven't we seen a photograph of the whole Earth yet?" The reason the campaign worked splendidly at various college campuses, I am convinced, is because I wore a da-glo sandwich board, white jump suit, parachute boots, and crumpled top hat with crystal heart and wilting flower. In such garb you are allowed to say and hear absolutely anything from strangers, and I did, engaging in sidewalk seminars the like of which I've never risen to since. As a friend who used to play Santa at Macy's put it, "You get to go be an archetype for an afternoon."

Hence my interest in these clown views of the world from Ramon Sender Morningstar and Wavy Gravy. Ramon helped found the early and influential San Francisco Tape Music Center and was a pillar of the wholly anarchistic Morningstar Ranch commune in northern California. He wrote the Spanish Civil War reminiscence "Ashes" that we printed in the Summer 1980 CQ. He's been clowning about four years now.

Wavy also is an old colleague, from when he was still Hugh Romney doing improvisational comedy with The Committee in San Francisco. He and the Hog Farm provided the majority of starvers at "Liferaft Earth," our 1969 Hunger Show. They provided the "Please Force" – security – at the Whole Earth Jamboree in 1978. Among entertainers as well as political activists he is one of the most respected artists of his generation.

–SB

Zero. The clown mask is the face of death.

YEARS OF COUNTRY LIVING as a voluntary simpleton came to an end last September when I returned to the city in an attempt to forward both of my careers – author and sidewalk clown. Clowning is perhaps the only socially acceptable career for a shaman-magician within our society. It goes back to very early times when some smart primitive discovered he could slap clay on his face, run through the village and scare the living day-lights out of everyone. Of course once someone recognized him under the make-up the situation became humorous. This tension release lies at the base of our response to clowns. White face has become a signal which says, "I'm going to look and act like a crazy person but I'm harmless." Just that paradox in itself is laugh-provoking, especially these days when there is so much violence on the streets. Beyond that, the grotesque clown mask is, in effect, the face of death and it allows the on-looker to discharge his or her own innate fear through laughter. There are a number of these grimace archetypes, but first of all let's look at the one I know best – Zero himself. His mouth is drawn in such a way that from a distance, his tongue seems to be protruding. Zero sticks his tongue out at the world, which is also the face of the sun god in Aztec myth. The sun god face in turn was derived, in my opinion, from the faces of captives staked out in the blazing sun to die of thirst and exposure. Often some little child will look at Zero and stick his tongue out in response. That child, I believe, has recognized his own Zero archetype mirrored in me. You see, each of us embraces a face of death, an attitude towards life, if you prefer. And along with that face goes a clown name, gesture, and an act.

The clown face reminds us of the mask we all present to the world, the "persona" as Carl Jung calls it. We take our persona so seriously and endow our Consensus Reality with so much power. Children, once they are old enough to play the Consensus Reality game somewhere around three, adore the clown because they recognize him as a magic figure, the Trickster whom Jung defines as a more primitive aspect of the personality. He stands at the gateway to the unconscious, according to Jung, and is the first of the archetypes to appear in dream analysis.

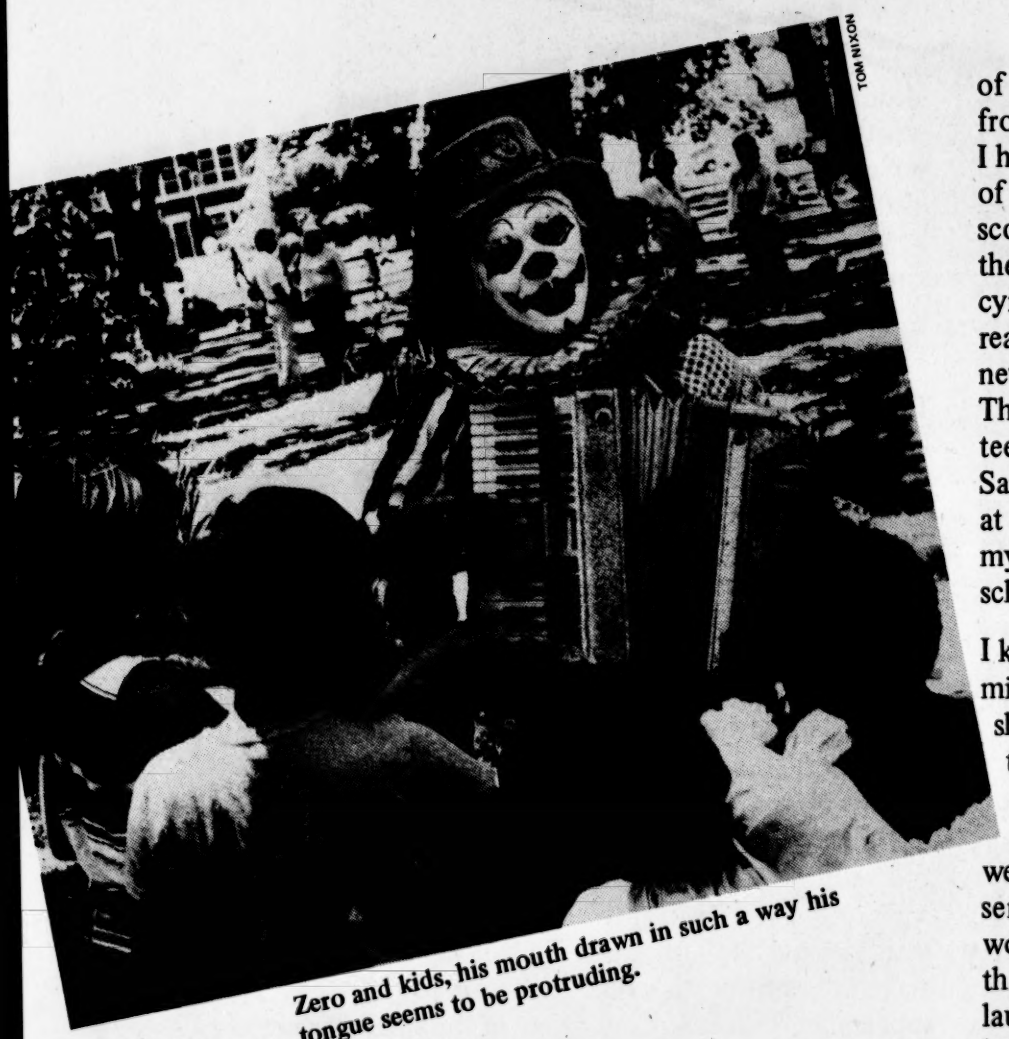
To the trickster-shadow part of ourselves, every-thing appears as its opposite or inversion. So-called civilized man forgets him until – peek-a-boo! – there he is embarrassing us in one way or another. At Carnivals and Mardi Gras celebrations, we see the remnants of the Fool's Festivals of the Middle Ages when for a whole day, everything went topsy-turvy. Masters would wait on their servants, a foolish bishop would recite a silly mass in the church and the congregation responded with bawdy songs. The church authorities, perhaps sensing the licentious pagan rituals kept alive in these festivities, finally managed to ban them by the early 16th Century.

There are also those children whom Zero terrifies. Usually they are two or three years old and have just become sensitized to the "way things are supposed to be." Suddenly here's this grotesque clown who shatters their understanding of things. But it is interesting to see how often, after the tears and initial terror subside, these are the very ones who will fall madly in love with Zero the next time around. Perhaps the fragility of their emotions only points out how in need they are of an emotional discharge experience of this sort. I cannot help but take Zero's terrifying of a child to heart and constantly refine his appearance and act to make him as immediately laugh-provok-ing as possible. Right now I am experimenting with a bustle, a pillow stuffed inside my suit to make my bottom stick out. During my first appearance with it at Clown Day in the small town of Occidental, California, many children teased me about "wearing diapers," and being "a big baby," which made me realize that I may once more have hit upon a subject containing much anxiety and tension, and thus full of laughs.

From four to ten years of age, most children are Zero's friends, although boys begin to drop away earlier than girls. By the time adolescence arrives I lose them, because at that age conformity becomes so important. The young person becomes so preoccupied in objectifying himself in relation to society – personality, clothes, make-up – that Zero's zany put-down of Consensus Reality seems meaningless. Among the sixty or so children who showed up to have their faces painted this year on Clown Day, there was only one teenage girl.

Adults, for the most part, give Zero a smile and a nod. However most of the quarters and dollar bills in Zero's kitty come from Third World people and minorities. It's the black woman who reaches into her purse, or the Chinese couple with a baby. Perhaps they are more quick to recognize the good luck magic of Zero's performance and are closer to the rich chaotic meaning of things than are the middle class, well-dressed whites who have so much more invested in Things As They Seem.

Another clown archetype I have recognized is The Hanged Man, exemplified by Wavy Gravy of Hog Farm fame. Somewhere there's a picture of Wavy standing tall, his eyes squeezed shut, a tear apiece trickling out, and that's his archetypal



Zero and kids, his mouth drawn in such a way his tongue seems to be protruding.

grimace insofar as I can see. I should add that if Zero has a guru, it's Wavy Gravy for sure. A more on-the-right-track clown doesn't exist!

For a writer, the double career of clown-author works very well. Feedback is notoriously slow for the novelist or poet. "I get fat and lonely behind the typewriter," I explain to folks. "Then I put on my clown suit, go out on the street and dance around. I lose a few pounds and get all this wonderful love and appreciation from everyone. It's really great!" It also gives me a camouflaged platform from which to view people. While they're busy reacting to Zero, I'm there behind the mask enjoying them. Imagine, in a few hours on the street I'm in eye-to-eye contact with hundreds of people! I have put my arms around old ladies from Wisconsin while their husbands take photos, I have played duets on the accordion with dozens of children. I've shaken hands with dozens more, scooped up smiles from one place and thrown them at someone across the street. I lose my cynicism on the sidewalk, because people are really very loving. In all my appearances, I have never been the recipient of any negative reactions. The worst that ever happened was a carful of teenagers who cruised by me on the main street of San Mateo and threw an empty milkshake carton at me. I stooped over, picked it up and put it on my head as if it was a present. The next day after school they drove by again, smiling and waving.

I keep thinking that the Police Department is missing a good thing. Instead of wading in with shields and clubs and tear gas at a riot or a protest, they should send in the Clown Squad with canisters of laughing gas. I've mentioned it once or twice to cops and they always say, "Oh, no, we're the symbol of authority. We need to be serious, to be respected." But I think it would be worth trying once just to see what happens. All that tension in a crowd could be released into laughter rather than into violence. Instead of breaking heads they could boff people with socks full of white flour. It could transform violent confrontation into silliness and fun.

In **Zero Summer**, yet unpublished, I describe my sidewalk clown experiences within the framework of a novel. I look forward to the day it is published because that day I will be able to merge the two aspects of myself, the author and the clown. At that point, no doubt Zero himself will begin writing the books and what will happen to me? I may just abandon the field to him and return to the countryside, where this all started in the first place. ■

NOBODY'S FOOL

by Wavy Gravy

Dear Stephanie, Stewart and other Co-earthers of the Whole Evolution – (to get this far I have gone through and discarded two out of three implements of write . . . 1. a technically slovenly souvenir of Disneyland, 2. a dying penpoint embedded in an ear of plastic corn and, finally, 3. this Bic. When I was a kid they shot Bic ballpoint pens through boards and then wrote with them on TV. I fantasized assassinating Richard Nixon with a ballpoint pen. "Eat Bic, Dick, it's mightier than the sword." But I digress, and this opening rant will soon be reduced to type.

In answer to your letter and enclosures (Zero's nifty article) of June 16, 1981, inquiring whether I'd be willing to write just what I think I'm doing when I'm clowning: Answer: Not thinking or

JEFFREY DOOLEY

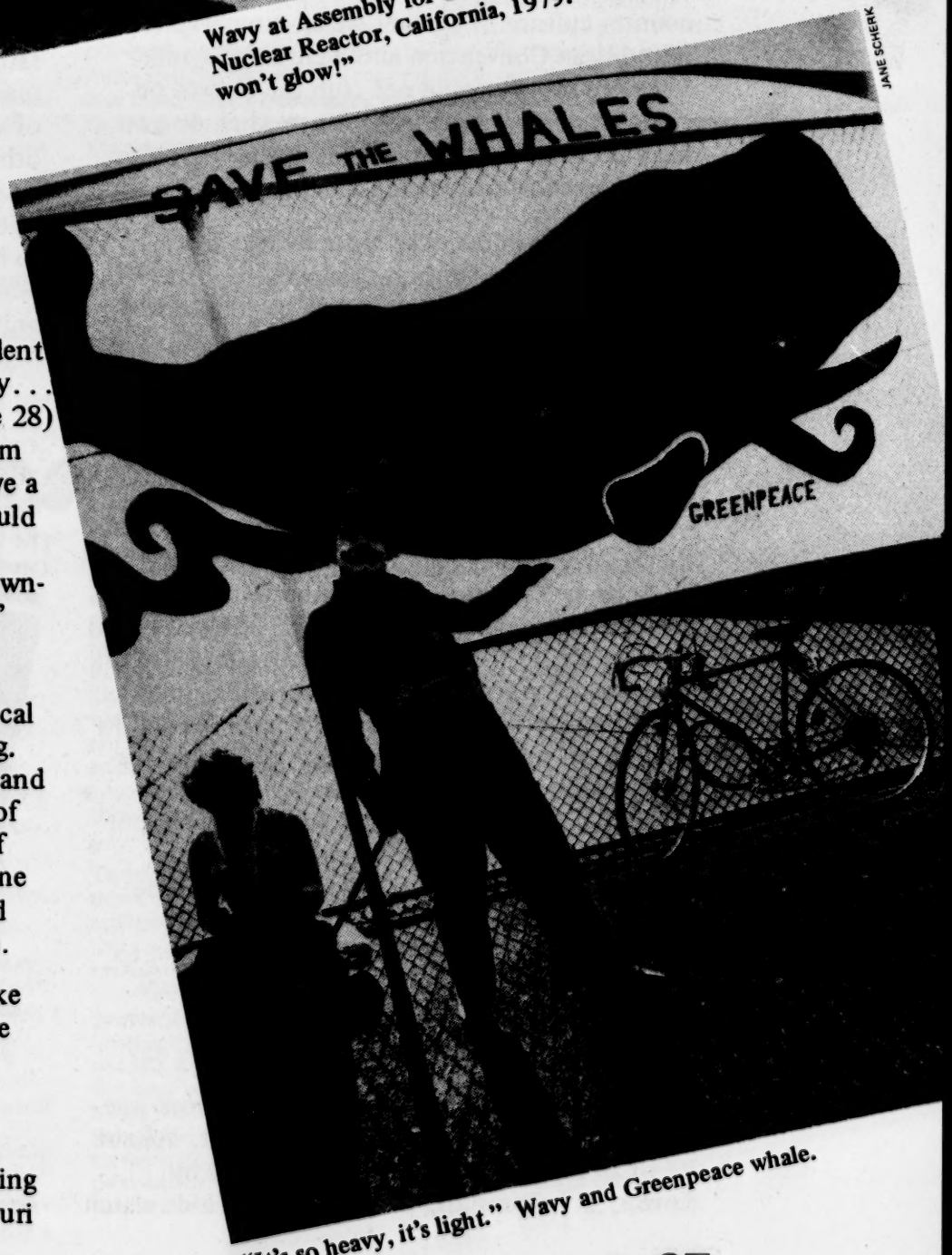
Wavy at Assembly for Children's Parade, Diablo Canyon Nuclear Reactor, California, 1979. "Heck no, we won't glow!"

thinking very little. Thinking gets in the way of thought.

Where was I?
a. was I clowning with kids . . . ?
b. playing with sick kids
c. playing with politics, like Nobody for President and the never-ending quest for creative anarchy. . .
d. clowning for causes like SEVA (see CQ issue 28) and No Nukes and Native Americans and Oxfam and Plenty more where that came from. (I have a silly dream that someday SEVA and Plenty could unite in some form of international outreach called Good & Plenty.) This cauzmik style clowning is usually performed backstage at a rock 'n' roll concert and I am usually scared shitless. I have been deputized by this or that worthy endeavor to relay their request to various musical artists (mostly old friends) to work for nothing. I wait and wait till it gets nice and calm inside and then it blurts itself out. Like I become a sort of human billboard for this or that fantasy, and if it lights up for the artist, we focus in with phone numbers and flyers or they just take a pass and it's nothing personal, but maybe the next time.

C. My political clown works larger than life like the Hog Farm in the anti-war years trying to be the rubber between the elevator doors. Using humor to defuse violence and dissolve social barriers. Evolve, Revolve and Desolve.

Example: I once had the great pleasure of buying out every red rubber nose in Kansas and Missouri



JANE SCHERK

"It's so heavy, it's light." Wavy and Greenpeace whale.

"Will you wear my nose?" Children's Hospital, Oakland, California.

and placing them on the noses of the under-the-counter culture. Together we circumnavigated the Republican Convention and were safe as milk. The cops simply could not club the clowns on color TV. Clowns are safe. Since when do you hear a couple of rednecks mutter, "Hey let's go kill a couple of clowns."?

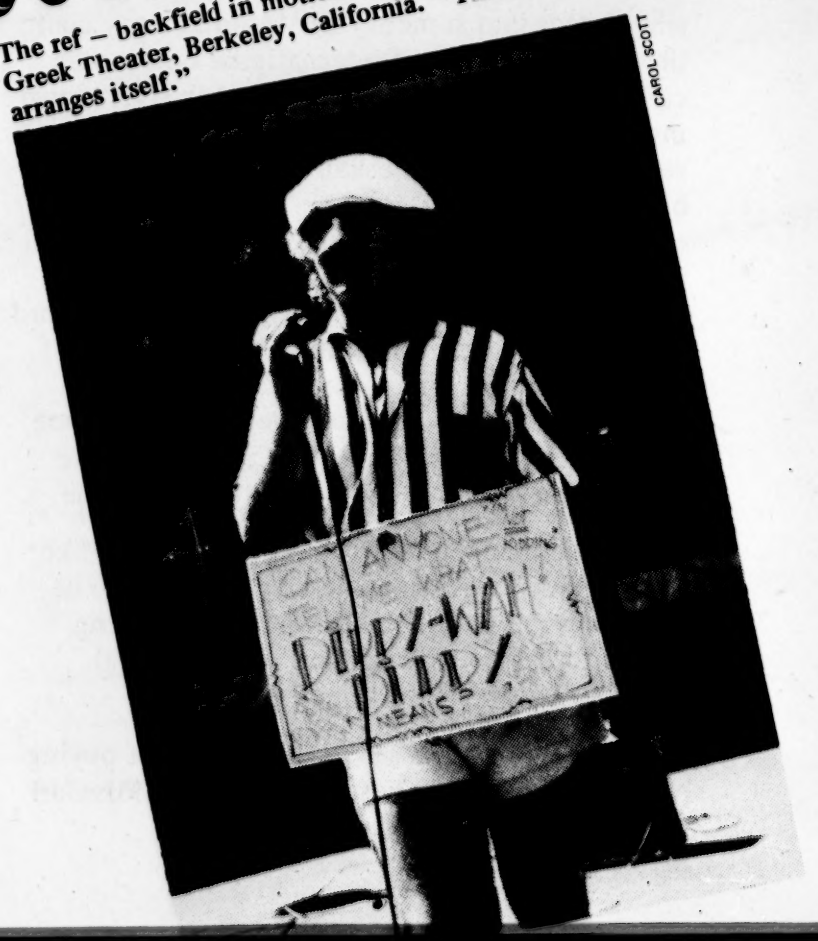
I came to this knowledge quite by accident. Dashing from an afternoon's clowning at the Oakland Children's Hospital to a political demonstration with no time to remove my make-up, the police adored me. I was safe at last.

When we first moved to Berkeley in 1972, the Hog Farm performed its life support functions a la Woodstock at the Berkeley Freak Fair and an article appeared in the Oakland **Tribune**, entitled "Social Worker in Freak's Clothing." Stephen Feldman and another doctor came to the house to ask if I would come to the Children's Hospital and try to cheer up the kids. This came after six years of personal surgery, body casts, steroids, uppers, downers, sideways, and was just what I needed to ooze out of my own funk and do something useful and positive. In this manner I gradually acquired the patina of clown. Moe Armstrong, our neighbor down the block, heard I was visiting kids in the hospital and he gave me his genuine "made for Ringling Bros." giant green and white wingtips. He was retiring and wanted his feet to go on walking. Somebody else gave me a nose. Carmen and Terran produced a reversible clown suit, and the make-up arranges itself to this day.

B. When I work with sick kids I like to work one on one. Each kid is different and so am I. About 3% of all children have been traumatized by clowns. It helps if you can let the little kids watch you put your make-up on. Get acquainted and exchange bubbles, riddles, balloons, songs, stories, checkers. Don't force anything. Just let it pop up. Have plenty of props to pop and one thing will lead to another.

A. Clowning with kids . . . let's face it. We're all kids and this is where I came in. Each summer my friend Surya Singer and I run a kids camp called Camp Winnarainbow. We teach circus and theatre arts in nature. This summer will be our fifth year at what I call "survival in the 21st century or how to duck with a sense of humor." In the early sixties I was a stand-up comedian and an opening act for Thelonious Monk. At an early age I learned to dodge ashtrays and assorted slings and arrows. I think that juggling should be taught in kindergarten and slack rope in second grade. My specialty is Space Eat. I taught Space Eat in the sixties to retarded kids at Cal State on a grant, and we called it "creative imagination." In the afternoons I taught it to contract players at Columbia Pictures and we called it improvisation and theatre games (thanks to Viola Spolin, Allan Meyerson and all those years at the Committee). Ah yes, the Committee – and John Brent who taught me to take chances. My favorite thing to teach is transformations – the perpetual changing of *who* I am, and *where* I am in concert with other players – no real objects – only shaping the air with body and mind (always agreeing with the initiator) we slide beyond all fear, 'cauz it's o.k. to blow it. There are no mistakes and it's never boring on the edge of the imagination, which is only pure spirit out having a bit of fun. ■

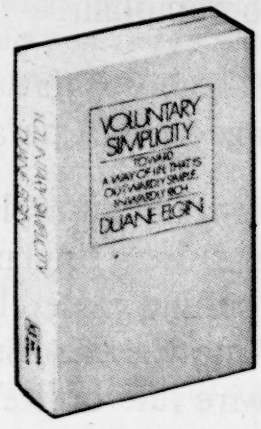
The ref – backfield in motion. First Tribal Stomp, Greek Theater, Berkeley, California. "The make-up arranges itself."



Voluntary Simplicity

The theory of improving everything by simplifying one's life — save the Earth, save your civilization, save yourself. I figure, if it feels good, it'll happen. Fortunately it feels good. This book gives context and motivation, not how-to. —SB

Voluntary Simplicity
(Toward a Way of Life That Is Outwardly Simple, Inwardly Rich)
Duane Elgin
1981; 312 pp.
$5.95 postpaid from:
William Morrow and Co.
Wilmor Warehouse
6 Henderson Drive
West Caldwell, NJ 07006
or Whole Earth Household Store



•

Satisfactions: Life is a lot simpler — I no longer spend twenty-four hours a month shaving legs and curling hair and god knows how long driving back and forth to Safeway. Life is infinitely cheaper — releasing money for the real luxuries of life. Dissatisfactions: outward appearances suggest poverty, and this culture is very discriminatory toward the poor . . .

(woman, twenty-eight, married, rural, west)

•

A most satisfying life in that we have a very close family relationship (our children are grown). We see that the children have developed values which are simple and allow for coping flexibly with the changing world. Using our own ideas and hands to make our way in both professions and homelife is an exhilarating (and sometimes tiring) way to live.

(woman, forty-seven, married, suburb, west)

•

Two Pathways into the Future:

Stage III: Growing exhaustion of the industrial world view and accompanying social order.

↓

Stage IV: Crisis of transition — the traditional view of the world is depleted and a workable alternative is not yet in place.

↙ ↘

• *Revitalization* — People embrace the challenge; a time of compressed social invention and high creativity.

• *Stagnation* — People retreat from this time of challenge and seek security in a highly managed social order.

•

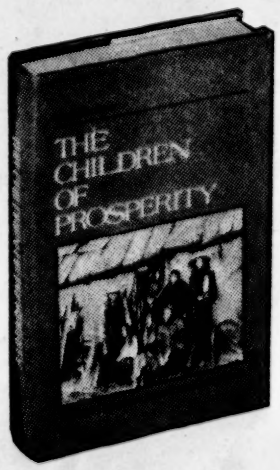
A self-reinforcing spiral of growth begins to unfold for those who choose to participate in the world in a life-sensing and life-serving manner. As we live more voluntarily — more consciously — we feel less identified with our material possessions and thereby are enabled to live more simply. As we live more simply, our lives become less filled with unnecessary distractions, we find it easier to bring our undivided attention into our passage through life, and thereby are enabled to live more consciously.

The Children of Prosperity

Communes of the '60s and '70s — the true story. Read it and cheer or read it and weep, this is the account to believe. I'm mildly familiar with 5 of Gardner's 13 well-studied communes — Drop City, Libre, Lama, Ananda, and Wheeler Ranch — and what I know agrees with his observations and critique.

They were profound experiments courageously made into the core of human society. Results are still coming in. This is the best early report. —SB

The Children of Prosperity
(Thirteen Modern American Communes)
Hugh Gardner
1978; 281 pp.
$9.70 postpaid from:
St. Martin's Press
175 Fifth Avenue
New York, NY 10010
or Whole Earth Household Store



•

Lama's elite governed almost invisibly, leaving the heavy hand to personal religious humility. Basic agreement with Lama's organizational goals was built in by the Caretaker's screening procedures. Although that agreement did not necessarily exempt Lama from internal disputes, there was a practical device for dealing with them, too. When conflict emerged in meetings and threatened to get out of hand, a quiet "AUM" chant would be initiated until things calmed down into perspective. Quoting the "Cookbook" again:

> Interpersonal matters are dealt with only to the extent that they are disruptive (i.e., capture the consciousness of the group or some participants). Such matters can be dealt with at group meeting if necessary . . . but the moment the group gets bogged down in heavy melodrama . . . it is well to call a meditation interlude until everyone can find a center again. Melodrama sucks us in again and again, but diminishes in power if actively thwarted.

The system was effective but altogether uncommon in 1970 or even today. Despite the recent growth of spiritual communities following the decline of secular ones, Lama still stands alone. As far as I know, Lama is unique in its peculiar combination of rigorous religious discipline, elite management, democratic participation, and rational-legal administration. One interesting contrast that comes to mind is Twin Oaks, a secular community based on B.F. Skinner's behavioralist principles, which is somewhat like Lama except for religion. But without the binding force of religious transcendence, Twin Oaks suffered chronic battles over authority and legitimacy and experienced many defections as it slowly came into focus as an organizational entity. At Lama, comparatively speaking, these problems were only minor blinks in God's eye.

•

Today, a new decentralist politics has emerged, based more on the analysis of institutional scale than the analysis of social class. This is basically the position of the radical or populist movement of our time, with many refreshing ideas coming from both right and left, all directed at the recovery of small-scale Jeffersonian democracy, neighborhood control, personal efficacy, and local self-reliance. Even corporations are starting to see the wisdom of decentralization. "Small is beautiful," the new wave is telling us today, showing many signs of being the future leadership of our country. The politicians would do well to take note. The historians would do well to remember that the communards anticipated these developments by taking the idea of decentralization as far, in modern America, as it can possibly go.

IN THE BEGINNING

by Leslie Woolf Hedley

IN THE BEGINNING there was

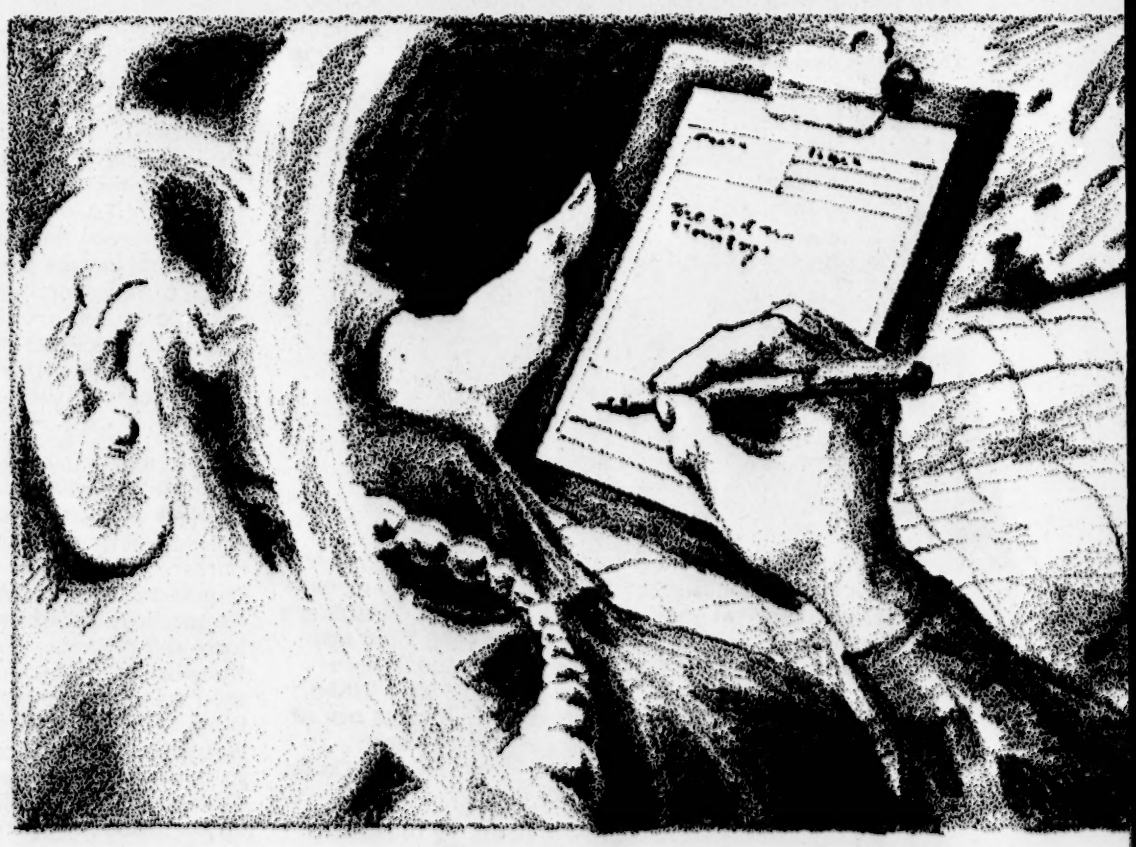
God created the world in seven days and Mrs. God asked, "What took you so long?" Everyone has a right to complain.

In the beginning there was naturally only one story. All language since is paraphrase.

Whenever I accidentally stumble across a story beginning in a small New England town my eyeballs regurgitate behind closed lids. That's how 90% of official American fiction starts. It's a clinging barbed wire rule of literary politics and a serious ailment in our fictive art. Close your precious eyes and contemplate something richer.

There are no true beginnings but in pain. When you understand that and can withstand pain, then you're almost ready to start.

Avoid muddy streets and loud voices insisting, guaranteeing, ordering, positing, pretending. Never associate too closely with civil servants or anyone making a career of being a celebrity. You become contaminated with deadly dust of lies, eristic dialog, compromises, deceits, hypocrisies, nonce words, excessive smiles, excursions into



Leslie Woolf Hedley lives in Novato, California, collects classical recordings, and is a distant relative of Virginia Woolf's. He makes his living with his pen, winningly. (He's received the Swiss Prix de Satire and the Dutch Rosenthal prize.) He's a believer in the social value of fiction.
–Stephanie Mills

plastic abstraction, that property tax of easy success, all hidden behind this anti-creative fact: a fat pension depends on how much blood has been pumped from the innocent. Art can rarely be made from that soft meat.

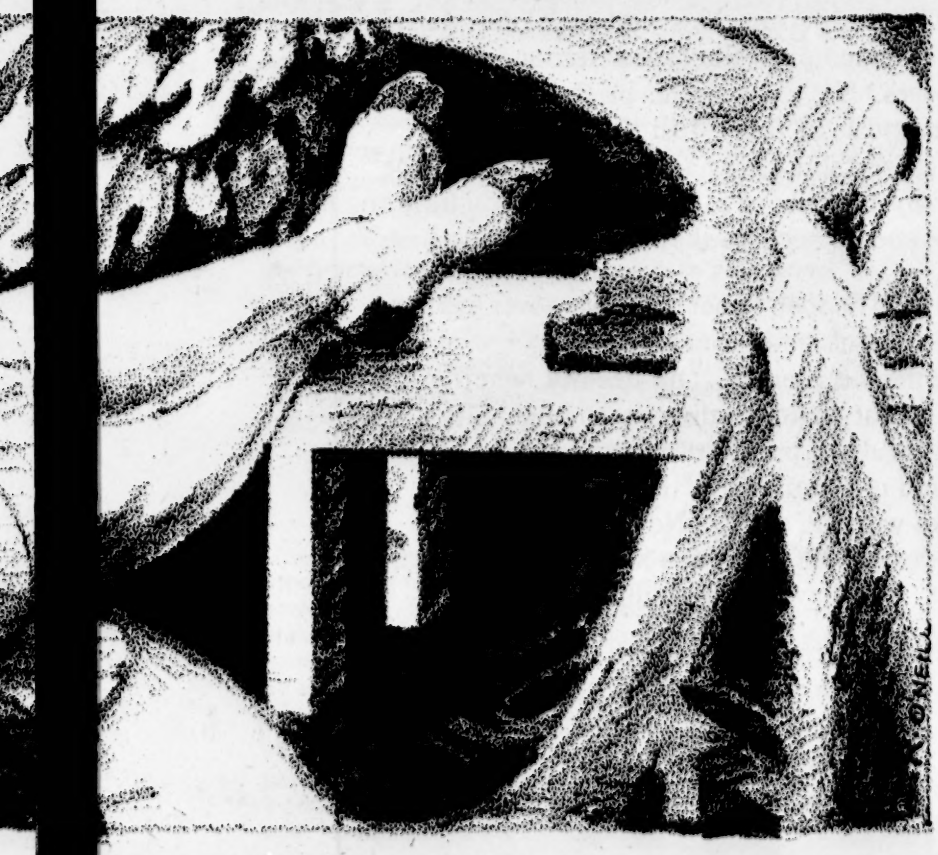
Obviously the story can't begin there. Appreciate this and you have a hint of a promise, a slight whisper of something else being born, a prickle of new insight.

No fictive effort has a stone step or ladder or convenient diving board but in the mind. The story is a tiny bleb inside the white pulp of human brain and swims, perhaps ever so slowly, invents movement, rhythm, twists about and departs through that complex red highway of blood. You're not dreaming the story. The story is now dreaming you.

Take that girl. No. Strike that. She's a trifle too young to be interesting.

Take that woman. She's a fifty year old accountant. Well trained, experienced. She works in an office. Five days a week. Occasionally her employer prods her into a six day week BECAUSE CERTAIN THINGS SIMPLY MUST GET DONE THE UNITED STATES GOVERNMENT NEEDS CERTAIN PAPERS THE STATE OF CALIFORNIA NEEDS CERTAIN PAPERS THE INTERNAL REVENUE SERVICE DEMANDS CERTAIN PAPERS THE ENTIRE EDIFICE OF AMERICA WILL COLLAPSE UNLESS CERTAIN PAPERS ARE COMPLETED THIS WEEKEND!

Our heroine is tired.



There, we've already broken through an iron editorial barrier in delineating an exhausted middle-aged heroine. Apparently she's not beautiful, but rather neat and perhaps as ordinary in appearance as most readers. She's never been to New England or a fashionable school. Nor does she desire visiting such mythical scenes. Actually, she was born in Wisconsin, educated in Illinois and chose to reside in California. Now this, you see, is still somewhat revolutionary in our fiction. Here we must pause from such daring. Only one revolution per page.

WHAT TO DO? Others in the same office are younger, almost epileptically aggressive, and dislike our accountant heroine for two reasons: 1. She isn't a member of their peer group and they've great difficulty relating to anyone older or younger. This limitation is ingrained, a generational syndrome. Without knowing it, they've been stamped out, almost exactly alike, naive robots reeking with neuroses, who astonishingly believe that they're bright, original, imaginative, vital to the progressive future of themselves and America, with the promise of plumper bankbooks, larger lawns, faster cars, newer boats, more modern houses enclosing extravagant hobbies, more luxurious clothes and improved sexual organs. They believe.

Meanwhile, they wear the same clothes, speak the same banal shorthand, do the same futile things. They don't think they'll ever have dandruff, lung cancer, balding heads or a heart attack. They're, in a word, rather boring, therefore they're bored. They race to keep busy. They yell. They dance. They often try to gain intelligence in dope and then discover that they're just as dumb and boring the next day.

Our fifty-year-old accountant believes only in the stark reality that she's now fighting a defensive war and must survive or perish. How many times does a person have to die to prove that they're human? So she attempts to ignore unsubtle barbs thrown at her daily, certain peripheral benefits she's being denied, and that she's required to work harder than others in her office. She's aware that they wish to punish her for being older.

And the other reason younger employees dislike her must be stated *sotto voce*, therefore I hide it in the corner of this page: 2. *She knows more than they do and they fear her superior knowledge.*

Let's say she would sometimes bend, using

Socratic irony, but this was lost on her opponents.

You see?

Now please note existing tensions within this set forth situation introduced *ab ovo* on this piece of paper, or if you will, our present dramatic stage. For interchanges between the life of humans, their acts and words, is essentially drama, either tragic or comic, or both. Like war. War is the ultimate pornography. Yet here we see incipient pornography without sex. Here is drama of human conflict. It may seem at first glance to be commonplace, particularly to those readers who never worked for a living, but we must take more than one glance to see anything. Reality is naturally clogged with misleading metaphors.

However, I have no intention of trying to measure this woman, our sad heroine. What right would we have to measure this person caught in a war that is pornographic in its icy, ritual relationship, its sadistic cruelty? Measure her? Measure ourselves. Only an undertaker can truly and finally measure any of us.

Doesn't this educated, competent, decent woman,
now fifty and fast approaching fifty-five,
who pinches her belly to see if the skin is too flabby,
who is concerned about four newly found facial cracks,
who gets headaches and has gas,
who has been on an unsuccessful diet to lose 8 goddamned pounds,
who now wears stronger eyeglasses,
who painfully concluded that she'll never marry again,
who is going through a change of life and taking pills,
who wears sensible shoes because her feet hurt,
who knows and has never forgotten a single financial fact about her firm's business,
who probably knows more intimate details about the business than her employer,
who is afraid at breakfast, lunch, dinner, dark evenings,
who visits museums and appreciates Culture,
who reads Serious Literature while those surrounding her read pop-psychology instructing **How To Win At Games, How To Improve Your Sex Life, How To Make A Million Dollars, How To Dominate Your Friends**,
who is lonely,
who worries that her landlord will again raise the rent,
who now speaks to goldfish and listens to them blow their speechless bubbles,
who takes two stiff shots of brandy before going to sleep,
who once was a pretty little girl of ten,

KATHLEEN O'NEILL

doesn't she suddenly loom as a symbol of something larger, something fragile, full of nerves, living and extremely important to us? Isn't she the stuff of super-real-surreal-dada-avant-garde fiction? Is she perhaps a potential bomb? Do you see her as another bundle of wasted illusions typical of America? Maybe she has her secrets: a child somewhere, a lover, a lost memory of happiness. Can you, author-creator-midwife, find these notable freckles on her silhouette? What would you subtract or add from this expanding trap of chaos, growing tensions?

What interconnecting lines do you detect here? Are these wrinkles of plot to be left untouched so they can mutilate and haunt? Is it all frivolous? You can't just bury her under a manhole cover of supercilious criticism. This woman is our relative now, our daughter of the typewriter and is alive on these pages. She's the brain's bright flesh, the chamber music of time. Just throw away that computerized shit listing all human data. No one knows anything about human beings. You have to love the people because they always lose.

So what will happen to her? For whatever happens to her is now directly touching you, me, everyone reading these sentences. Our destiny, whether we wish it or not, is linked directly to hers. She is art. She is also a pregnant question mark spewing a hundred question marks that swim down the page like wiggling sperm. Now what do you intend doing with her? You have the unfinished portrait. You have the beginning.

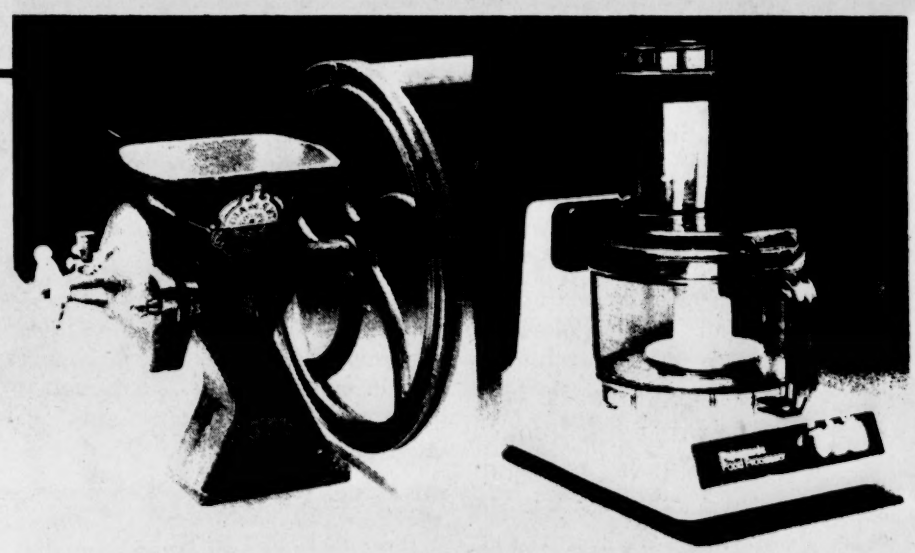
"In the beginning there was a fifty year old woman who was an accountant working for

■

Home Food Systems

Rodale's version of a cook's catalog. Evaluates: devices such as grinders and food processors; methods such as canning, drying, sprouting; growing your own stock, even basement aquaculture. They also cover planning your home, utilizing your garbage (compost), and testing your drinking water. A good tool for good homemakers.
—Evelyn Eldridge-Diaz

Home Food Systems
(Rodale's Catalog of Methods and Tools for Producing, Processing, and and Preserving Naturally Good Foods)
Roger B. Yepsen, Jr., Editor
1981; 475 pp.
$13.95 postpaid from:
Rodale Books
33 East Minor
Emmaus, PA 18049
or Whole Earth Household Store



Diamant Domestic Mill **Panasonic Food Processor**

●
Diamant Domestic Mill (Type D 525)
$275 East, $285 West. Steel and stone grinding surfaces. Grinds a pound of fine flour in 5 min. 55 lbs. W 16" x D 20" x H 20".

The cast iron Danish Diamant is an impressive mill in performance and appearance. It turned relatively easily, and was one of the most efficient flour producers we tested. This is partly due to an auger with teeth which cracks the grain before pushing it into the grinding chamber. The steel burr plates produced flour as fine as any stones could grind. The mill will grind animal feeds and seeds, as well as grains and beans for people. . . .

With three sets of metal plates and one set of man-made stones available at extra cost, the Diamant ranks high in versatility. Good alignment means the grind is even and allows no whole or cracked kernels to escape into the flour. A course setting with the fine plates rubs bran away in large shavings that can be sifted off and used as bran in other recipes. Coarser plates produce a uniformly textured cereal or cracked wheat. Plates can be changed in about 3 minutes with only the help of a large screwdriver. Cleaning is not difficult.

The manufacturer's literature recommends the mill for grinding oily foods like soybeans and peanuts. We had success producing soy flour but the mill clogged when we tried to make peanut butter.

In-Tec Equipment Co., Box 123, D.V. Station, Dayton, OH 45406.

●
Panasonic Food Processor (model MK-5050)
$159

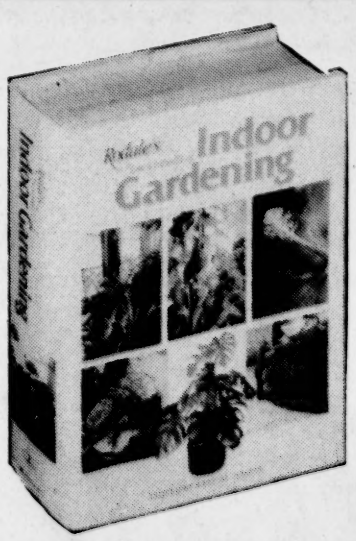
This machine was quiet, it held still as it worked, and responded quickly with its on-off switch. It produced a good dough ball quickly and mixed banana bread evenly.

The Panasonic had two features that none of the other machines offered. An addition to the food chute lowers flexible stainless steel fingers which hold food upright for attractive slicing. The fingers worked well. An optional potato peeling attachment also did a fine job.

Rodale's Encyclopedia of Indoor Gardening

This impressive book is both comprehensive and easy to understand. The encyclopedia portion covers specific information on 252 houseplants; other subjects are organized by chapters, instead of alphabetically. Color photographs are numerous and of good quality. And since the Rodale organization has made its reputation promoting organic techniques, the pest control chapter stresses preventive maintenance, biological control, and botanical insecticides. That's a welcome relief from most indoor gardening books, because the last place you should use synthetic chemical bug killers is in your home.
—Richard Nilsen

Rodale's Encyclopedia of Indoor Gardening
Anne M. Halpin, Editor
1980; 902 pp.
$29.95 postpaid from:
Rodale Books
33 East Minor Street
Emmaus, PA 18049
or Whole Earth Household Store



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Carrots from a Pot: Round or small-rooted carrots are more practical for indoor culture than long-rooted types, although larger carrots can be grown successfully in deeper pots.

●
More house plants are killed by overwatering than by any other single factor. This killing with kindness is easy to understand, since it is normal for people to worry about plants drying out. In truth, the penalties of drying out from underwatering are far less severe than those caused by an excess of water.

●
When you plant the seedling in its peat container in its permanent location, be sure the container is buried at least ¼ inch (6 mm) below the soil surface, since if the peat is exposed to the air it can act as a wick and dry out the entire container. This will seriously damage delicate roots growing through the cube or pot. Because peat pots are notorious for being so tightly compressed that roots sometimes have difficulty growing through the walls, it is best to remove the bottom of the pot and also to tear the sides before planting; this will allow the roots to emerge and help the peat pot to disintegrate.

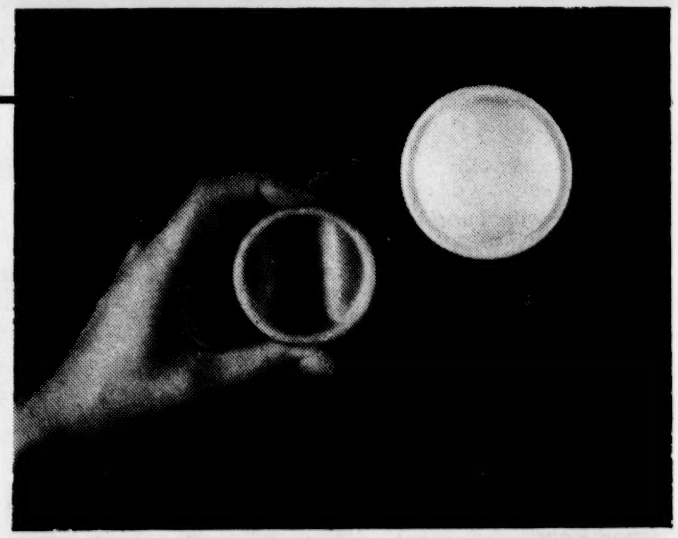
Honey Cup: improved diaphragm

Another jellyless alternative to the conventional diaphragm and to cervical caps is the nonspermicide fit-free diaphragm (NFFD) method which is being promoted by a renegade gynecologist named Edward Stim.

In conventional practice, a diaphragm must be as large as possible and therefore requires fitting by a practitioner. These days diaphragms are thought to serve as receptacles for spermicide rather than as effective barriers to sperm, because the back third of the vagina balloons during sexual arousal, obviating the "fit."

Stim's idea, which was brought to our notice by reader Susan Hamilton, is that a small (size 60) arcing diaphragm can cover the cervix and prevent a critical mass of sperm from entering with no spermicide necessary. (Art and Lorrie decided it should be called the Havahart diaphragm because it traps sperm without killing them.) Stim argues that the greater comfort and aesthetics of NFFD make it more likely to be used consistently. The ideal use of the method involves alternating two of the little diaphragms at two or three day intervals. Stim has made an improvement which permits the device to remain in the vagina for up to a week.

To avoid the development of the right powerful stink which would usually result, Stim has figured a way to imbue the diaphragm with honey, which has antibiotic



qualities that retard the growth of odor-causing bacteria on the latex surface. Hence the name Honey Cup.

NFFD has not gained official recognition yet because the only statistics to date on its effectiveness are Stim's own. He claims results a little better than those achieved with conventional diaphragm use. Ms. Hamilton waxed enthusiastic and readers fed up with their diaphragms, condoms, or caps will be delighted to know that Honey Cups with an instructional booklet are available for $10 each postpaid from Edward M. Stim, M.D., Box 1652, New York, NY 10116. Until more results are in, their use should be considered experimental. Yeast infections might be a possible side effect. Even so, count me in as a willing guinea pig.

—Stephanie Mills

Beating the Adoption Game

Traditionally the adoption system in this country has ranked close to the prison system in its unrealistic attitudes and archaic principles. Only the "perfect" couple — church-going, God-fearing, infertile, with dependable income, proper middle class house, the right number of electrical outlets and impeccable background — was considered eligible to adopt children. Before contraception and abortion became widely acceptable practices, there were more babies than perfect couples to adopt them. The situation is dramatically reversed today, and agencies with long waiting lists of prospective parents can be more choosy than ever in placing the fewer and fewer "ideal" babies (white, healthy, and whole).

(This doesn't mean there aren't babies available. There are, but they aren't the blond, blue-eyed cherubs the ideal couple wants. They are black, or mixed race, or handicapped, or increasingly — in a society addicted to chemicals that alter genetic codes — deformed and/or retarded.)

Oddly, as the number of eminently adoptable babies has declined, the numbers of older children available for adoption has increased staggeringly due to a variety of social factors, most notably the breakdown of extended family ties, economic instability, child abuse, neglect, and the general extinction of family as its priority is upstaged by the politics and values of a media culture. There are literally hundreds of thousands of these children, supported by welfare programs in foster homes and institutions in every state. (I know, because I spent months poring over massive volumes from different states — photographs and resumés of thousands of young, unwanted lives — despairing at the idea of choosing any at the expense of the rest.)

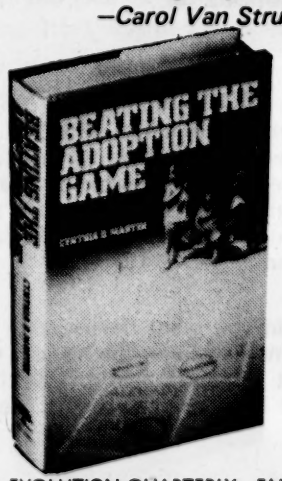
The increase in these hard to place children has forced both public and private agencies to relax their standards in order to find homes for at least a small percentage of them. Agencies more and more are considering single parents (both male and female), parents with alternative life styles, working parents, handicapped parents, interracial couples, people with marginal incomes, and other unconventional persons to be eligible as adoptive parents to these children. They are finally recognizing not just the economic sensibility of permanent, adoptive homes versus publicly-funded foster care and institutions, but also the benefit to the child of being wanted, loved and secure, no matter how unconventional the arrangement.

But the babies are still saved for the ideal couple. The single man or woman, the interracial couple, the couple capable of reproducing, the working couple, or low-income persons are more than ever turned down as the number of adoptable babies declines. This book is written primarily for them. It is a useful guide for dealing with both private and governmental agencies, but its primary focus is on what to do when you have exhausted those possibilities: go out and make a concerted effort to find your own baby. It is not as impossible or absurd as it may sound. Abortion is not always what a woman would choose if she knew how important and precious the child she is carrying could be to the family or person who wants it.

Beating the Adoption Game *shatters many myths perpetuated by the existing system, among them the myth that women necessarily prefer abortion, the myth that private (non-agency) adoptions are more costly, riskier, and somehow unethical, and the myth that it is somehow profoundly sinful to pay a woman for the nine months she spends growing a baby inside her for someone else. This is a practical and useful book for anyone who has ever longed to be a parent but was sure no agency would consider him/her eligible.*

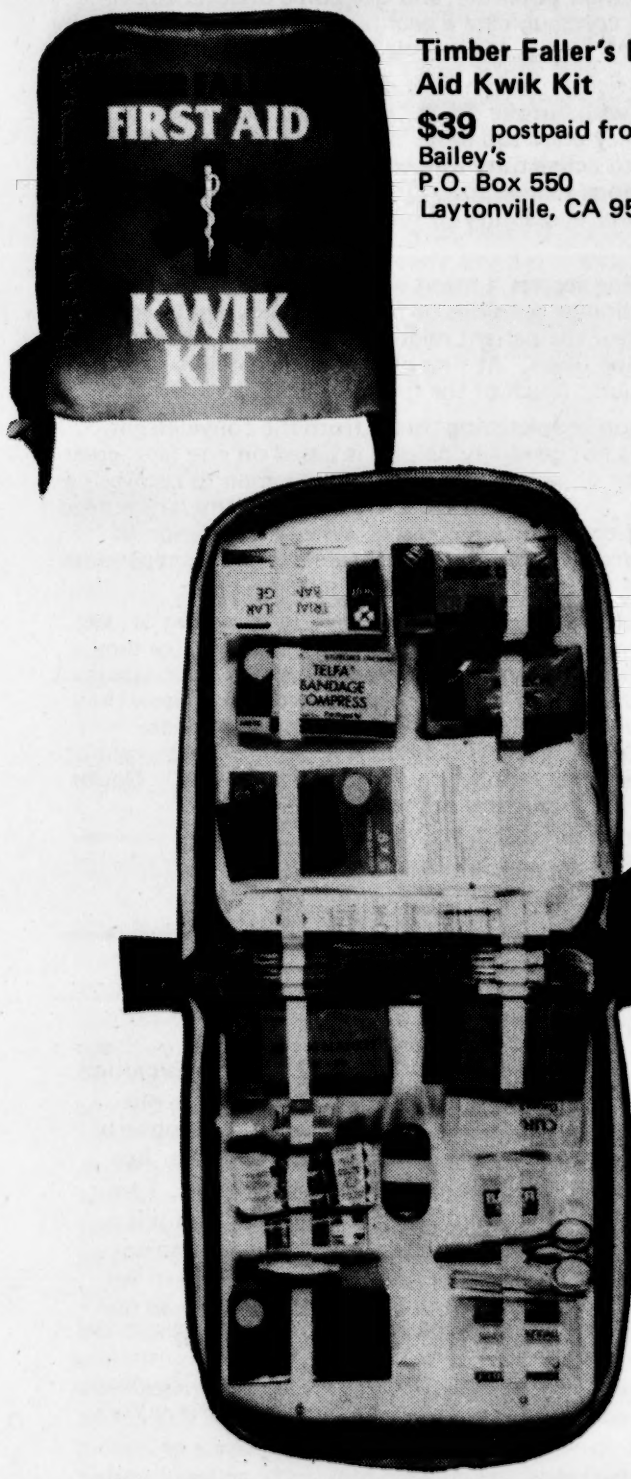
—Carol Van Strum

Beating the Adoption Game
Cynthia D. Martin
1980; 304 pp.
$11.45 postpaid from:
Oak Tree Publications
P.O. Box 1012
La Jolla, CA 92038
or Whole Earth
Household Store



Timber Faller's First Aid Kwik Kit

One of the best first aid kits we've seen (Medical Editor Tom Ferguson agrees) at a price well below any of the others – with magnetic attachments to stick it to your refrigerator door or car interior. Put together for loggers, who can't always go check into an emergency room when they get a wound. *–Art Kleiner*



Timber Faller's First Aid Kwik Kit

$39 postpaid from:
Bailey's
P.O. Box 550
Laytonville, CA 95454

Homeopathic criticism

Dear Mr. Brand:

Dana Ullman's piece on homeopathy in **CQ** No. 29 was interesting, but its length (14 pages) was scarcely in keeping with homeopathic principles.

I xeroxed the article, shredded it, stirred the resulting chaff in a blender, and finally picked out one piece. It said

er

This is what you should have published.

This dose of homeopathic lore seems at least as likely to be effective as any larger one.

Robert R. Fenichel, M.D.
Santa Monica, California

Malaria on the increase again, everywhere

CALIFORNIA

Year	No. of malaria cases reported in California
1978	225
1979	318
1980	743

Figures for 1980 represent a 143% increase over 1979. Of the 1980 cases:

- 17% (126) were India immigrants
- 59% (437) were Indo-Chinese refugees
- the remaining cases represent California travelers not taking adequate medical precautions, African students and foreign visitors.
- 2 cases were caused by blood transfusions (donor not properly screened – not aware they were carriers)
- 1 case congenital – newborn (mother was Indo-Chinese refugee).
- 1 case of truck driver in Central Valley bitten by infected mosquito – unable to identify location in Central Valley.

As of March 28, 1981, California has experienced a 48% increase over 1980 for the same time period. That is, 151 cases have been reported this year compared to 102 cases within the same time period last year.

California has the mosquito vector capable of transmitting malaria.

NATIONWIDE

The Center for Disease Control (CDC) in Atlanta cites the following U.S.A figures:

Year	No. Cases	Military	U.S. Civilians	Foreign Civilians	Unknown
1969	4062	predominately			
1970	4247	4096			
1971	3180	2975			
1972	614				
1973	222				
1974	323				
1975	448				
1976	415				
1977	481				
1978	616	31	270	315	0
1979	839	11	224	601	3
1980	1933				

INTERNATIONALLY

International estimates of malaria cases are very tentative as reporting procedures are not as sophisticated as those in California.

Some figures cited in reports available to Department of Health Services are:

India	1965	200,000 reported cases
	1978	6 to 7 million (could have been as high as 10 to 20 million)
	1981	40 to 60 million (source N. Meyers, United Nations Environment Programme)
Turkey	1966	26,000 reported cases
	1978	117,000 reported cases

Dr. Rod Roberts of the Department of Health Services "guestimated" there were around 150 million cases/year worldwide. He said tropical Africa never had malaria under control, and reported cases are up in Central America also.

Kay Griffin
Resources Agency
Sacramento, California

When the Mental Patient Comes Home

A 24-year-old man whom I'm close to has just been told that in a year he'll have to leave the halfway house for learning-disabled adults where he lives and try to make it in the outside world. Suddenly all the things he's let slide – keeping clean, learning to get a job, relating to people, taking care of himself – loom terrifyingly close. I've never been terrifically clean myself, but I have to express to my friend why I think it's worth taking a shower every day. I've never been sure of myself socially, but I have to answer when he asks how to get girls to like him. Dealing with the mental patient in my life is like dealing with the parts of myself that I'd just as soon avoid.

This book really helped – not so much by any specific advice as by its overall context. When you care about someone, it's beside the point that they're not acting as they ideally might, and it's beside the point that you feel guilty or responsible for their problems. Getting past the guilt turns out to be part love and part technique, like so many other skills. Like **After Suicide** *(NWEC p. 332), also a Christian Care Book, this one is nonpreachy, nonsectarian, and practical. It tells how your friends (or family) can get by with a little help from you.*

–Art Kleiner

When the Mental Patient Comes Home
George Bennett
1980; 118 pp.
$6.58 postpaid from:
Westminster Press
925 Chestnut Street
Philadelphia, PA 19107
or Whole Earth Household Store

- To regard recovering mental patients as helpless and hopeless is to contribute to their disability. A long time ago I learned from a brilliant psychiatrist that "people will only be as responsible as we let them." When we treat people as if they cannot recover, we impede their improvement. On the other hand, realizing that they can grow stronger, increase their potential, and overcome disabilities of the past, we communicate a healthy influence both spiritually and scientifically, and people respond positively.

  Psychiatrists on active duty during the war learned that soldiers who "broke down" in combat should not be kept in recovery areas too long. Those who were returned rapidly to active duty did well. Those hospitalized for long periods tended toward further disintegration of personality and ability to function.

- By keeping secrets, I mean withholding from the patient information or opinions or feelings which family and friends fear the patient might not be able to handle without getting upset. At first glance, this protective attitude seems good. Much of the time it is not.

  The reason that keeping things from the convalescent patient is not generally helpful is based on one fact: great self-doubt or lack of confidence is common to recovering patients. Most persons recuperating from any illness need their self-confidence increased. When information or feelings are withheld, the unintended message that patients receive is that others doubt them also.

  Sooner or later, patients learn about information or opinions not shared with them. They then realize they have been excluded. They begin to wonder what else is being withheld. If they question others, they know they are sounding suspicious. People will think they are getting "paranoid." If they do not question, they cannot be sure what all is going on "behind their backs." Doubt and distrust in self and others increases.

Local suicide makes good

We heard from one of the three surviving attempters interviewed at the end of "How Not to Commit Suicide" last issue (p. 88). A 21-year-old college student, "Trina" had told about taking a Coricidin overdose, vomiting most of it up at the infirmary, and being held in a locked, barred room by the infirmary psychiatrist. She wound up remarking, "I don't look at people's problems as trivial any more. I feel like I can help now." –Art Kleiner

Dear Art,

I just received and read the article you sent and wanted to send my thanks. I *really* enjoyed the article – it was very sensitively done and *very* informative. I admire you for having taken up that subject. Suicide is a topic people just don't like to talk about . . . that's one thing that makes it hard during the aftermath of a suicide attempt – the fear of talking about "it," the shame, the fear of rejection. . . . It was refreshing to meet someone involved and interested like yourself. Thank you for bringing a subject to light that badly needs it! And thanks for helping me use my own experience to help someone else. This is most important, after all.

Life is really looking up right now. I've moved into a new apartment that I really like, with great roommates. I'm doing some really fulfilling work – I have a job with United Neighbors in Action, a nursing home reform group. We operate six hotlines throughout the Bay Area, by which patients and their relatives can call in with complaints. We file the complaints with the Department of Health, and go on inspections with them. We also lobby in Sacramento for pro-senior rights and provide free counselling to the public on selecting a nursing home. I love the work, and am meeting all kinds of good people. This work seems so important to me – with ol' Reagan in office, it's harder and harder to get money for this type of thing. I basically canvass neighborhoods for money and/or volunteers. Great exercise and great way to get to talk to lots of folks.

Hm, what else? I'm taking classical guitar lessons and singing with the San Francisco opera summer season. I'm in the chorus of *Die Meistersinger,* a German opera. And falling in love . . . ! So I'm pretty busy and happy!

Trina

Suicide comment

Dear Stephanie Mills –

As I read the latest issue (Summer '81), I find **CoEvolution** to be gaining in its levels of social understanding and sophistication. No longer are the conditions of poverty and war answered by the simple equation of New Age Technology & Consciousness = Balance & Peace. I am beginning to feel a wind from the underworld in this magazine as if now it's important to chronicle the unknown events of everyday life. The compassion in Art Kleiner's article on how not to commit suicide had the qualities of being both Buddhist & Punk for me.

Tony Vaughan
New York, New York

The day they hated the rec room

"The Day They Tested the Rec Room" in the Summer '81 **CQ** *— a fiction about sex in a zero-gravity with graphic illustration by Betty Dodson — I believe is the most complained-about piece we've ever run. If anybody liked it, they weren't moved to write and say so. Most of the letters were in the vein of this one from solar-evaluator Shurcliff. (His review of Photovoltaics is on p. 77.) —SB*

To all key people responsible for **CoEvolution Quarterly**:

I am dumbfounded by the purposeless vulgarity of a certain article (by Paul Brians) in your summer issue. I hereby cancel my subscription.

Has no one on your staff any awareness of what common pornography consists of and what harm it can do? Are you not aware that sex is already much overemphasized in the world today? Is it your opinion that sex is a mere mechanical undertaking, good only for laughs? Do you believe that nothing strange and intimate and personal should remain so? Would you be proud to have 8- and 12-year-old children read that article? Would you read it aloud to your own or your neighbors' young children? Do you expect me to hide the magazine from my children? Do you expect me to find that article ennobling, enriching, inspirational?

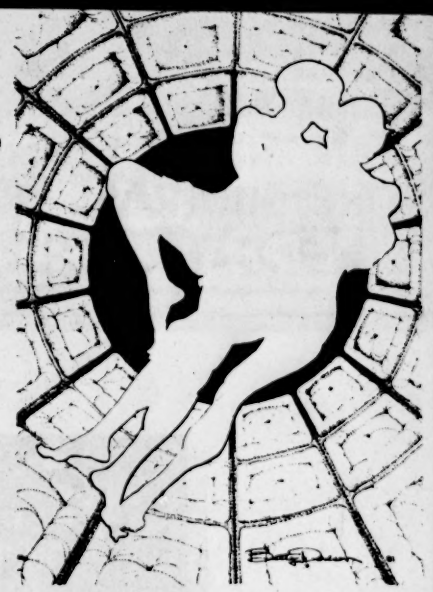
In short, have you all lost your wits? Are you not aware that the world is in a bad way, thousands of problems need to be solved? Did you not originally intend **CoEvolution Quarterly** to deal with important issues, and to address them in an adult way?

What in the world has possessed you to suddenly feature a big article containing nothing but the same smutty jokes I used to see penned on the walls of public toilets 50 years ago?

Unless I obtain written assurance from you that this kind of puerile filth will be excluded from your magazine, I am through with it forever.

Kindly cancel my subscription and kindly refund my money at once. I subscribed on the understanding that it was an adult magazine dealing with serious issues. I was deceived. And I am bitterly disappointed.

William A. Shurcliff
Cambridge, Massachussetts



Not all pet-haters are two-legged

The deal was, if we liked the kitten we had to take its cousin too. The kitten was a Fat Freddy's orange tiger tom, full of piss, vinegar and personality. The cousin was the runt of the litter, white with big black patches. Mad cat lovers, we took them. The cousin turned out to be a one-cat depression center. Crept around with perpetual apprehension in its eyes and cringed abjectly if anyone tried to pet it or pick it up. If we did manage to pick it up, it lay limp in our hands, creating a sensation like a wet jelly fish — or worse. No one liked it. No one would take it despite heavy hints to catless individuals about to be deleted from our address book.

Then we landed a luxurious house sitting job in Woodside. We moved in and someone immediately began depositing copious quantities of liquid cat diarrhea on the deep pile, blue-gray living room rug. Nose-rubbing-in exercises followed but both cats looked equally guilty. The rug continued to suffer. Our guests wore permanently fixed tolerant smiles. The nose-rubbing exercises increased. The cousin cat's depression increased and all it would do between inquisitions was yowl and hide under the bathtub.

Finally, one day before my accomplice left town on a business trip she announced that if the cousin wasn't there upon her return, no questions would be asked. The cousin was quickly tried and found guilty and cha-cha'd off to the pound.

Burning with guilt, I returned home to find one very small but familiar deposit on the carpet and no orange tiger in sight. After an unprecedented two-week's absence he arrived home, twenty minutes after my accomplice. There were no further assaults on the rug and not a word was spoken on the subject, but every once in a while that orange tiger grins at us.

Michael Maurier
Bangkok, Thailand

What volleyball game?

I read about Don Ryan's amnesia with interest ("Gossip," Summer '81). Five years ago a horse I was working with dumped me flush onto my forehead. I stood up and clutched my shattered glasses, dazed but unconcerned. My friend of 17 years, Ashley, walked up and asked about the fall. I said, "What horse?" Ash escorted me to my cabin where he and two other adults and three kids conducted an interrogation. For an hour I remembered nothing and recognized none of them.

Under normal circumstances I am talkative, giddy, and maybe a bit raunchy. During the amnesia I became a real Milquetoast, quiet, timid, passive. After each question, I protested: "I'll answer your questions, but please stop making fun of me." Of course, no one was making fun of me. Finally I recognized one of the kids, then everything came back rather quickly, except for my nose (which is still crooked) and the memory of events immediately preceding the fall.

Three months later, I suddenly remembered that an onlooker had playfully slapped the rump of the touchy horse I was riding, thus triggering the bucking episode and the fall. I asked the person, and he admitted it was true.

Perhaps each of us has a split personality, a deeply buried antiself, a balancer, that surfaces during amnesia. I'd love to know more about it and to read other people's experiences. I predict that in three months Don Ryan will even remember the score of the volleyball game.

Michael DiLeo
Portola Valley, California

Fountain of youth

The kids in our town play a water game I've not seen elsewhere. I think a local park-and-rec guy started it some years back, and it's become local tradition. It's called Marco Polo. All you need is waist-deep water and a bunch of kids.

The one who is It closes his eyes. He's trying to catch one of the other kids, who then becomes It. Since It can't see, he locates the others by sonar: he sings "Marco" whenever he likes, and the others have to answer, "Polo." When "Marco" draws a nearby "Polo," there's a lunge and lots of splashy giggling. That's all there is to it, but the game seems to continue all day long in the town pond's shallows. It's delightful to sit on the beach toward sunset when over there is a knot of kids singing Marco and Polo, and knifing into and out of the water like gleaming dolphins.

All best,

John Kelsey
Fine Woodworking
Newtown, Connecticut

ON THE EASTERN SLOPES OF THE SIERRAS.. WE FIND THE RED ☆ STAR DETECTIVES

FRED AND HUGH ON THE TRAIL OF LITTLEFOOT

INTO THE WASHOE SINK

THIRTY CENTS A DAY FOR THIS...!

..IF WE RECOVER THE CHICKENS..

BY DAN O'NEILL

HMMM.. TIME FOR PLAN B!

..IF WE RECOVER THE CHICKENS?? YOU DIDN'T TELL ME THIS..

SO?

THERE IS NO NEED FOR YOU TO KNOW THESE THINGS..

HEY.. IF I AM RISKING MY LIFE FOR THIRTY CENTS A DAY, I NEED TO KNOW I WILL BE PAID THAT THIRTY CENTS!

WRONG!! YOU NEED TO KNOW SOMEONE THINKS YOU ARE WORTH THIRTY CENTS A DAY... MAYBE.. IF YOU RISK YOUR LIFE..

IF I RISK MY LIFE?

YOU DON'T THINK ANYONE IS GOING TO PAY YOU THIRTY CENTS OF HARD CASH IN TODAY'S ECONOMY IF YOU DON'T RISK YOUR LIFE, DO YOU?

OUT THERE.. I KNOW THE CHICKENS ARE OUT THERE..

AND THE PETALUMA POULTRY PRODUCERS WILL PAY ME TEN CENTS A CHICKEN.. MINUS YOUR WAGES OF THREE WEEKS AT THIRTY CENTS A DAY FROM 2000 CHICKENS AT TEN CENTS APIECE LEAVES ME $193.70..

I ONLY GET $6.30?

IF YOU RISK YOUR LIFE, YOU GET $6.30! I'M NOT GOING TO DO ALL THE WORK..

WELL.. I'M ONLY GOING TO RISK MY LIFE $6.30 WORTH!

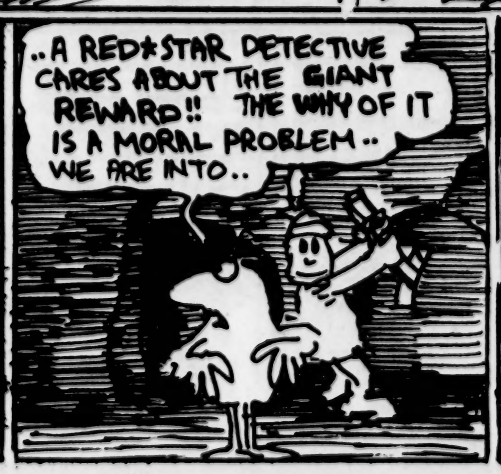
WANNA BET..?

GO BACK, GUMSHOE!

LAST WARNING.. GO BACK!!

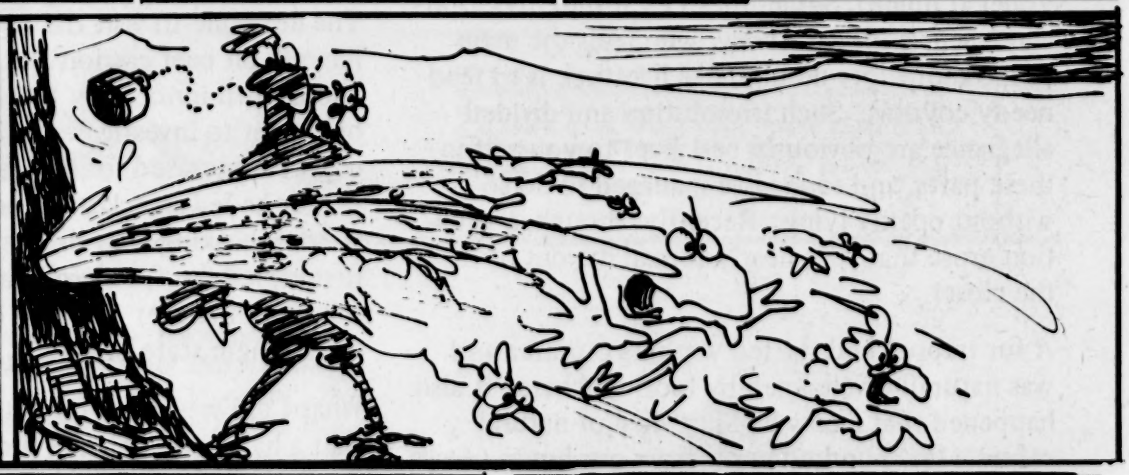
FRED'S TRAINED INVESTIGATIVE EYE SEES SOMETHING UNUSUAL IN THE LANDSCAPE... HIS INSTINCT TELLS HIM..

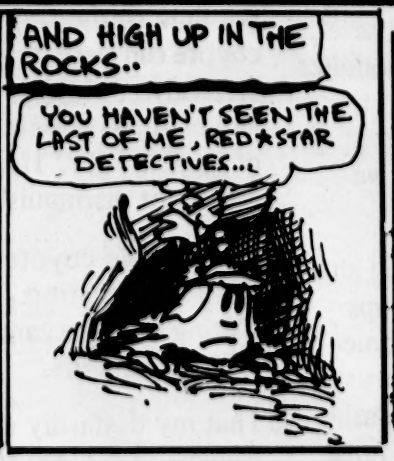
LITTLEFOOT IS NEARBY...

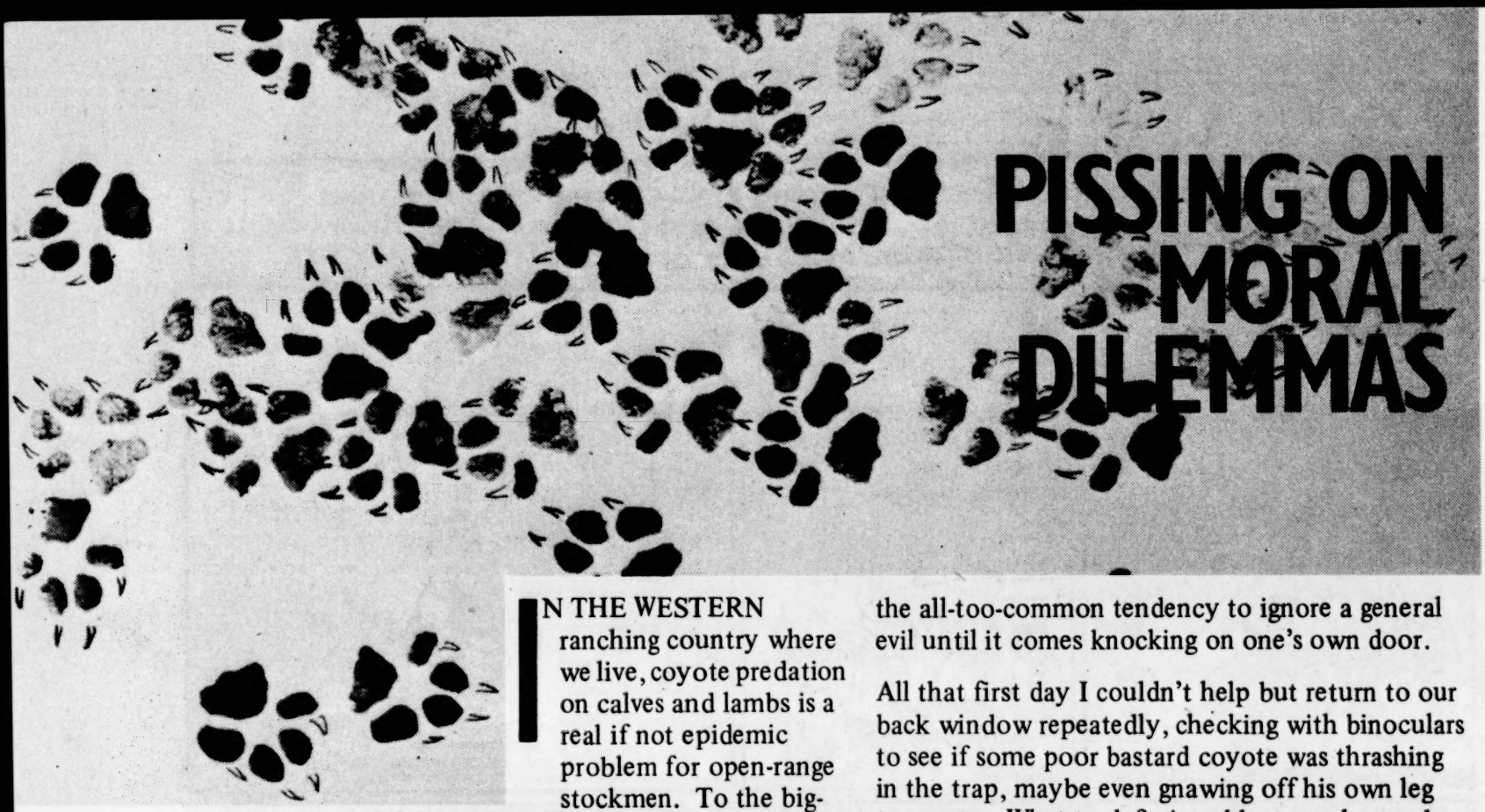


THE WASHOE SINK... A LAND OF UNDERGROUND RIVERS, FORGOTTEN MINESHAFTS, VOLCANIC HOT SPRINGS.. NOTHING IS AS IT SEEMS.. NOT EVEN THE FLOOR...

THE BATWINGED HAMBURGER SNATCHER, HAVING INDULGED HIS CURIOSITY AND FOLLOWED THE RAGING TEN FOOT TALL WERECHICKEN (FROM A DISCREET DISTANCE), IS NOW OVER THE MOUNTAINS AND TWELVE MILES EAST OF CARSON PASS... WHEN....







PISSING ON MORAL DILEMMAS

IN THE WESTERN ranching country where we live, coyote predation on calves and lambs is a real if not epidemic problem for open-range stockmen. To the bigger ranchers, occasional loss of stock to coyotes is a minor economic bump. For smaller operations, though, it really hurts when coyotes drag down a calf worth several hundred bucks. Economics aside, it gets downright personal when coyotes pull their favorite stunt of attacking a cow while helpless in labor and eating the still-emerging calf.

Anyhow, coyotes aren't very popular around here and are generally shot on sight. As a neighborly gesture, I've even shot a couple myself, though I mostly just like to watch them and hear them yodel at might. Sometimes I even find myself in agreement with Ed Abbey, who feels the main purpose of super-dumb range livestock is to feed needy coyotes. Such irresolution and divided allegiance are obviously best kept to yourself in these parts, and so far I've managed to do so without openly lying. Recently, though, a situation arose that very nearly forced me out of the closet.

A fur trapper had started working our area and was naturally welcomed by local ranchers. It also happened that a cow had just died of natural causes a few hundred yards from our house (downwind fortunately), and magpies, ravens, and several coyotes were already working this carrion bonanza on a daily basis. It was a natural place to set a trap, and permission was duly granted the trapper to do so. In plain sight of our house where we could watch the whole gruesome show.

Now while I've already confessed to shooting an occasional coyote, I draw the line at steel traps which clamp into a panicked animal's leg, sometimes for days, until the trapper returns to crush its skull with a club. I had been vaguely aware that this sad scene was being repeated all around us every day as long as the trapper worked our area, but until then we at least didn't have to see it. It was an embarrassingly precise example of the all-too-common tendency to ignore a general evil until it comes knocking on one's own door.

All that first day I couldn't help but return to our back window repeatedly, checking with binoculars to see if some poor bastard coyote was thrashing in the trap, maybe even gnawing off his own leg to escape. What to do? A sudden moral crusade against cruelty to our furry friends would be seen as squeamish (musn't lose macho face), unrealistic (the goddam coyotes are killing our stock!), and vaguely subversive (we gotta fuckin' preservationist up on the hill!). Outright sabotage, like springing or stealing the trap, would eventually get me a fat lip from the trapper, while also providing clear evidence that I was not only a preservationist (spit) but also a thief!

No, it seemed the poor damned coyotes couldn't count on my moral intervention in their behalf. The next one to visit the cow carcass would dine happily on beef carrion and, licking his befouled chops, turn innocently to go. At which point he'd start to investigate the enticing smell of bitch coyote urine used for bait, and so by stomach and pecker be led smack into the trap. Hmmm. It was by thinking thus that in my crazed state I first espied the faintly glimmering tendrils of a solution, however wild and desperate, to this most unfortunate state of affairs.

What I did was drink two quick cups of coffee and wait a half hour. Then I surreptitiously crossed the field to the trap and pissed all over it. If a coyote can detect a few drops of bitch urine, he certainly could detect my generous contribution, and coyotes will absolutely avoid even the faintest of human odor. Hopefully, the trapper himself could not distinguish piss varieties.

Anyhow, no coyote has been caught so far at that particular location. I think they've even quit visiting the cow carcass. It's a terrible mystery to folks hereabouts.

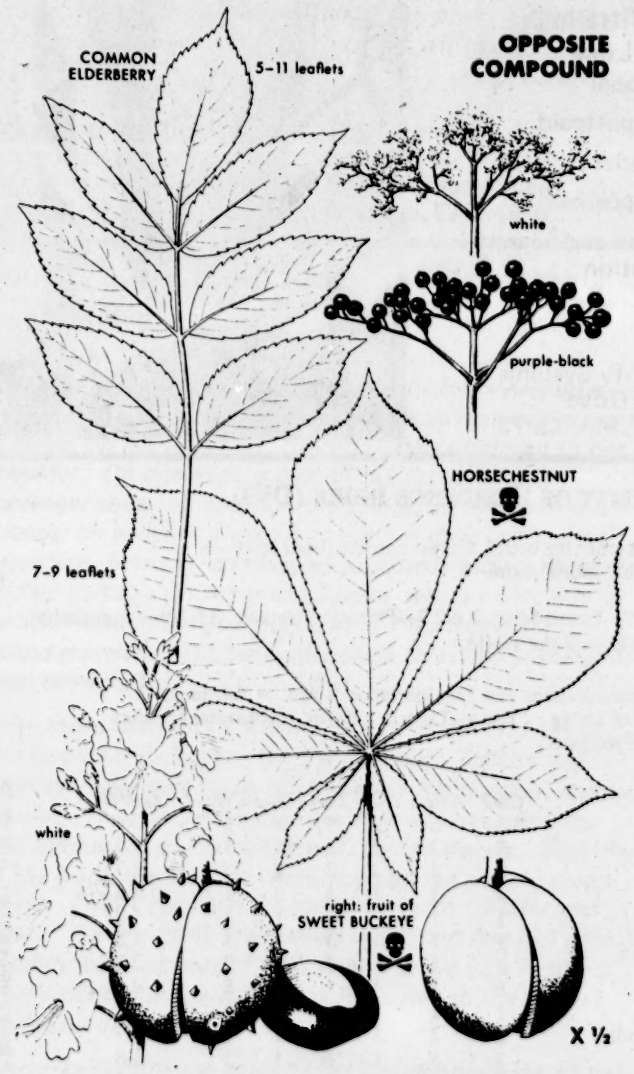
That my dastardly deed might remain a reasonably painless resolution to a moral dilemma and not further pit neighbor against neighbor, I remain,

Anonymously Yours ■

A Field Guide to Edible Wild Plants

The appendix is delightfully moderne — edibles clustered by old fields, waste ground, swamps, thickets, still water, and then, like Japanese haiku, displayed by season. The most comprehensive eastern guide but, damn it, despite heroic efforts, plant identification remains obscure.

—Peter Warshall



A Field Guide to Edible Wild Plants
(of Eastern and Central North America)
Lee Peterson
1977; 330 pp.
$11.95 postpaid from:
Houghton Mifflin Co.
Mail Order Department
2 Park Street
Boston, MA 02107
or Whole Earth Household Store

OPPOSITE COMPOUND LEAVES

COMMON ELDERBERRY — **Flower clusters, ripe fruit (only)**
Sambucus canadensis .Color pl. 2
A common erect shrub. Leaves divided into 5–11 coarsely-toothed, elliptic leaflets; 4–11 in. (10–27.5 cm) long. Twigs stout, soft, with a *thick white pith.* Flowers small, white, in dense *flat-topped clusters.* Berries tiny, juicy, *purple-black.* 3–13 ft. (0.9–3.9 m). **Where found:** Wet or damp rich soils; streambanks, thickets, roadside ditches. Canada south to Texas, Ga. **Flowers:** June–July. **Fruit:** Aug.–Oct.
Use: Fritters, jelly, cold drink, fruit. The large *flower clusters* can be dipped in batter and fried in oil to make fritters. Although the fresh *berries* are rank smelling and mildly unpleasant tasting, they are excellent when properly prepared. They make an outstanding jelly when mixed with the juice of one of the more tart fruits such as green apples, crabapples, or half-ripe grapes. Add one cup of water for every quart of berries, simmer for 10–15 min., mash, and simmer for another 10 min., then strain through several layers of cheesecloth. Prepare the juice of the tart fruit you choose in a similar manner. Combine the two juices, sweeten to taste and heat again until ready to jell. Elderberries do not contain their own pectin, so if you do not add at least as much of the tart juice as elderberry juice, you will need to use commercial pectin. Elderberry juice can also be chilled and used as a cold drink. Elderberries are easily dried by separating them from their stalks and placing them in the sun on flat trays; not only does the drying remove the rank odor and taste, but it allows one to store them for winter use. Once the dried berries have been reconstituted in boiling water, they are excellent added to muffins, mixed in fruit stews, or made into pie filling. Berries extremely rich in vitamin C; also contain vitamin A, calcium, iron, and potassium. **Warning:** Although flowers and ripe fruit are perfectly edible, the roots, stems, leaves, and unripe berries can cause nausea, vomiting, and diarrhea. SUMMER (flowers); LATE SUMMER (fruit)

HORSECHESTNUT — **Poisonous**
Aesculus hippocastanum
A large tree. Leaves palm-shaped, with 7–9 wedge-shaped, toothed leaflets; 4–15 in. (10–37.5 cm) long. Flowers white, in showy upright spikes. Note the 3-part, thorny husks and large shiny-brown nuts. Up to 75 ft. (22.5 m). Several similar native species, buckeyes, *Aesculus* spp., with 5 leaflets and yellow or red flowers, are also poisonous; fruit of SWEET BUCKEYE, *A. octandra,* shown. **Where found:** Planted around homes. Much of our area. **Flowers:** May. **Fruit:** Sept.–Oct.
Warning: All parts contain a dangerous glycoside. Nuts should not be eaten, even after thorough soaking.

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The full gamut of top-quality boat electronic gear at genuine bargain prices. Radiotelephones, depth sounder, depth recorders (essential for ocean fishing), radio direction finders, antennas, Loran C, sailing instruments, radar, autopilots, etc. *—SB*

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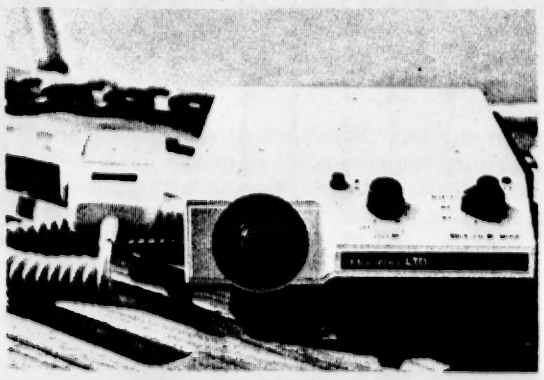

Whistler Radar
The Whistler is simple to use. It is used much like a search light, able to "see" up to 2 NM thru fog, haze or darkness. The Whistler will inform you of any above-water object such as a buoy, rock shore-line, boat, etc. This target information is presented to you audibly thru earphones and visually on the range meter.

Stugeron by mail

The only reliable cure for seasickness, not available in the U.S., at last has a mail order source in England. Anne Herbert, for example, puked a lot when she went for a ride in Dick Fugett's joint-owned airplane. A couple of months later with a little Stugeron in her and in the same plane in similar weather, she was just fine. Miracle drug.
—SB

The scoop on Stugeron (**NWEC** *p. 436): Stugeron is manufactured by Janssen Pharmaceutical, Beerse, Belgium, and distributed by Janssen Pharmaceutical Ltd. in the U.K. (who are owned by Johnson and Johnson in the U.S.). It is available by mail order to the U.S. from: J.M.W. Vicary, 7, Banks Road, Haddenham, Bucks HP17. 8Ed, England, for £7.50 (about $16) for four packets of 25 tablets and is sent airmail. It is most unlikely ever to be available in the U.S. as the patent is about run out and so nobody can be bothered to put it through the FDA.*
—Jonathan Evelegh

Citadel bike lock

Consumer Reports *gave an "outstanding" rating to Citadel locks. If you must leave your bike unattended in urban areas, this is the one to have. You can get through it with a cutting torch only – hacksaw blades would wear out before working through, and your arm would get tired of hammering on it. Plus it's one of a very few locks that will secure a bike to a parking meter – no more hunting for suitable trees, lampposts, or racks. Costs about $30 from many bike shops; the "moped" version, which has a longer (more useful) hasp, is about $35.*
—Karen Missavage

Citadel Ultra-high Security Lock
Bicycle model
$31.95 postpaid
Moped model
$36.95 postpaid
Information and nearest dealer location
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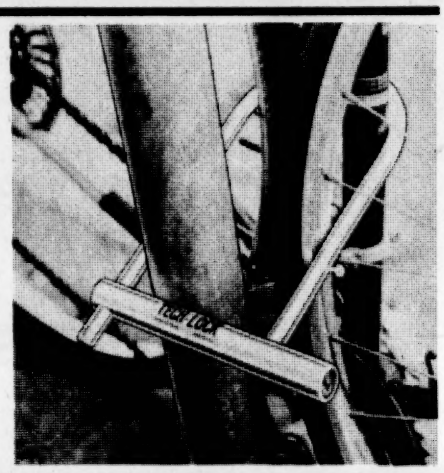
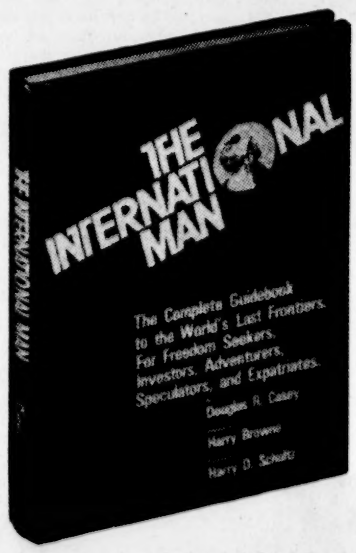


The International Man

Ever thought that things might be "better" elsewhere than in the U.S.A.? This cold-blooded guidebook tells you what to expect in the international scene, country by country. Laws, business climate, political aspects, social pressures, and a host of other matters are all discussed in considerable detail, with noticeable author's bias which some people will find highly annoying. I found the book informative, irritating, and exciting all at the same time. If you're thinking of living and/or doing business in another country, you might find this all interesting. I was fascinated.
—J. Baldwin

The International Man
(The Complete Guidebook to the World's Last Frontiers. For Freedom Seekers, Investors, Adventurers, Speculators, and Expatriates.)
Douglas R. Casey
1978; 133 pp.
$19.95 postpaid from:
Alexandria House Books
901 North Washington St.
Alexandria, VA 22314
or Whole Earth Household Store



American Map Company

Claims to be "the most comprehensive line of commercial maps published in the world." Sure enough, they have all the Bartholomew, Philips, Hallwag, Mair, and BMC lines. Those plus Michelin (**NWEC** *p. 399) and National Geographic* (**NWEC** *p. 22) and you've about got the world by the short hairs.*
—SB

Travel Maps
Catalog No. 604

free from:
American Map Company
1926 Broadway
New York, NY 10023

Desirability of Residence Index (DRI)

The lower the score the better. Lowest possible (best) score—1.
Highest possible (worst) score—5.

Less Than 2.0—Outstanding. 2.0-2.9—Pleasant-Tolerable. 3.0-3.9—Undesirable.
4.0+—Hell Holes of the World.

C&T = Communications and Transportation Amen. = Amenities
COL = Cost of Living Tax = Taxes Finan = Financial Freedom
CvF = Civil Freedoms

Country	*C&T*	*Amen.*	*COL*	*Tax*	*Finan*	*CvF*	*Overall*
Afghanistan	5	5	2	*	2	4	3.6
Andorra	2	2	2	1	1	1	1.5
Argentina	4	3	2	2	2	3	2.7
Australia	2	2	2	3	3	1	2.2
Bahamas	1	1	2	1	1	1	1.2
Belgium	1	1	3	3	2	1	1.8
Brazil	3	1	3	2	3	2	2.3
Burma	5	5	4	*	4	5	4.6
Canada	1	1	2	3	2	1	1.7
Channel Islands	2	2	2	2	1	1	1.7
Costa Rica	3	3	1	1	1	2	1.8
Great Britain	1	1	2	4	3	1	2.0
Haiti	4	3	1	*	2	3	2.6
India	5	3	3	4	5	4	4.0
Iran	4	3	5	3	3	5	4.7
Ireland	2	2	1	4	3	1	2.2
Israel	3	3	3	4	4	2	3.2
Italy	2	1	2	2	3	1	1.8
Ivory Cost	4	3	4	2	2	2	2.8
Japan	2	1	5	3	2	2	2.5
Liberia	4	5	4	2	3	3	3.5
Malawi	5	5	5	*	5	5	5.0
Monaco	1	1	4	1	1	1	1.5
Morocco	3	3	1	*	3	3	2.6
New Zealand	2	2	2	4	2	1	2.2
Netherlands	1	1	3	2	2	1	1.7
Paraguay	5	4	1	*	2	3	3.0
Peoples Repub. China	5	5	*	5	5	5	5.0
Portugal	3	1	1	2	3	2	2.0
Puerto Rico	1	2	2	3	2	1	1.8
Rhodesia	4	3	1	2	3	2	2.5
Saudi Arabia	4	5	5	1	2	3	3.3
Scandanavia	1	1	4	4	2	1	2.2
South Africa	2	2	1	2	2	3	2.0
Spain	2	2	1	2	3	1	1.8
Sri Lanka	4	4	1	2	5	4	3.3
Switzerland	1	1	5	2	1	1	1.8
Taiwan	3	2	2	2	2	3	2.3
Tanzania	5	5	5	*	5	5	5.0
Uganda	5	5	5	*	5	5	5.0
United States	1	1	4	3	1	1	1.8
USSR	4	4	3	5	5	4	4.2
Uruguay	4	3	2	2	3	3	2.8
Venezuela	2	2	2	2	2	2	2.0
West Germany	1	1	4	3	1	1	1.8
Zaire	5	5	5	*	5	5	5.0

*This indicates it is not possible to give a reasonable estimate because of the nature of the country's politics and economy. Average for such countries was based upon four ratings.

GoodTravel Tours

Ugly Americans can be a lot less ugly if they do their organized touring with these folks. Instead of the Kukubuku Hilton, you stay with the folks you're visiting. Your cash goes directly to them, too and not to International Headquarters in New York. Once near the part of the world involved, you travel by tramp steamer, bus and jitney, or even feet. It's kind of middle ground between total on-your-own and the usual tourist bit. By the looks of their letters from satisfied customers, I'd say this is a good idea for those who prefer a certain amount of arrangement in their travels off the beaten track. —J. Baldwin

GoodTravel Tours
Information

free from:
GoodTravel Tours
5332 College Avenue
Oakland, CA 94618

South Pacific Handbook

Indonesia Handbook

Dalton and Stanley take obvious delight in serving up a sumptuous feast of detail. Their Tahitian dancer has beads of sweat on her upper lip, strands of hair plastered to her shoulder. On one page, a map of the routes of Fiji passenger ships; on another, the stamps of the Solomon Islands; on another, the cost of the hot dogs in Honiara. Essentials, bonuses: all here, all extraordinarily accurate and up-to-date. In American Samoa, where I live, **South Pacific Handbook** *has scooped even the most inventive island travelers. The best guidebook this road junkie has seen anywhere.*

Even more than for its accuracy or its graphics, I value this book for its ethics. On the first page, Dalton and Stanley stress that theirs is a book for the traveler, not the tourist. They decry the tourism that debases, distorts, and leeches upon the traditional island cultures. They list in the book the basic facilities used by the people themselves. They urge open exchange between traveler and host: "You not only learn more and spend less but you actually become part of the country while you're there." I only wish more guides were as sensitive to the impact of their words.

There is a companion guide called the **Indonesia Handbook** *which I haven't seen — worth checking into if it's even half as good as* **South Pacific Handbook.** *(It is. —SB)*
—Robert Brock

South Pacific Handbook
Bill Dalton and
David Stanley
1979, 1981; 562 pp.
2nd Edition
$11.95 postpaid

Indonesia Handbook
Bill Dalton
1979, 1980; 486 pp.
2nd Edition
$9.95 postpaid

both from:
Moon Publications
P.O. Box 1696
Chico, CA 95927
or Whole Earth
Household Store

●

Tipping is at odds with the Pacific tradition of hospitality and thus is only done by inexperienced tourists. It's an island custom that any gift must be reciprocated so when you give a tip you put the receiver in the unenviable position of owing you something.
—South Pacific Handbook

A trick for especially tight crawlways is to put one arm and shoulder through the hole and drag the other behind, as this caver is doing. —Exploring Caves

CAVING

by Richard A. Watson

CAVING COMBINES THE SPORT of exploring caves with the science of speleology. No one need apply who shudders at the thought of struggling alone in the silent dark through mud and cold water in rock tubes barely big enough to slide into hundreds of feet beneath the surface of the Earth. But those who overcome claustrophobia and fear of the dark to master the skills of climbing, crawling, and finding one's way underground are well rewarded. Besides the sensual delight in rounded rock forms, in tiny hidden rooms and passage mazes far from the outside world, and in the discovery of secret places where few or no people have ever been before, cavers also find satisfaction in mapping caves and in learning about cave geology and and biology.

Exploring caves is psychologically and physically strenuous. It also requires specialized skills and equipment. You must be trained in safety techniques for your protection and in conservation techniques for the protection of caves, which are relatively rare on Earth and which contain endangered animal species and fragile rock forms. For these reasons, anyone who wants to explore a cave should write for information to the only caving organization in the United States, which will provide you with the names of people in your area who can introduce you to caving. This organization is The National Speleological Society, Cave Avenue, Huntsville, AL 35810.

Founded in 1941, the NSS is the largest caving organization in the world, serving more than 4000 members.

more ➔

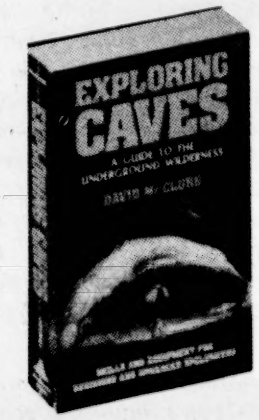
Richard Watson reviewed a caving supply shop whose owner asked not to be listed because he doesn't think caving should be publicized. "Backpacking and rock climbing trails are on public land, and they're choked up with regulations," he said. "But most caves are on private land. The owners get tired of people from cities, looking for something to do on a weekend, who come up and leave trash. When their flashlight goes out they drop it on the ground. Or they unroll string, thinking it'll keep them from getting lost, and they leave the string behind. Or they roll up to an owner saying, 'Can we see your cave?' and when the owner says, 'No, you don't have the right equipment,' they cuss him out, saying, 'We just drove up 350 miles to see your cave and now you won't let us in.' So when we cavers pull up next, the owner says, 'No, you can't see the cave, because the last people who came here cussed at me and dumped trash.' We find that if we don't publicize these things people won't find us unless they really care about it, so we don't want to be listed. Tell them to get in touch with the National Speleological Society and go with a group, so they can learn about courtesy and keeping the place clean."

Watson is a professor of philosophy at Washington University, St. Louis, coauthor of **The Longest Cave,** *and editor of the Zephyrus Press cave-book series.* —Art Kleiner

Membership is $18 a year, for which one receives two periodicals, the **NSS News** *monthly and the* **NSS Bulletin** *quarterly. The* **News** *is up to 36 pages long and is oriented toward general caving, the* **Bulletin** *toward general speleology. Both are illustrated with many photographs. These publications alone are worth the membership dues for anyone interested in caves. The National Speleological Society also publishes an invaluable series of pamphlets on various aspects of caving, plus numerous other publications. Local branches are called grottoes, with which most regular cavers in the U.S. are affiliated. All cavers should join the National Speleological Society.*

EXPLORING CAVES

This is the only general guide in print to caving in North America. It is a complete and much improved revision of an earlier book. Perhaps its greatest advantage is firmness of opinion. When you are experienced, you may disagree with McClurg, but he does provide an unambiguous standard for beginners.



Exploring Caves
(A Guide to the Underground Wilderness)
David McClurg
1980; 287 pp.
$10.95 postpaid from:
Stackpole Books
Cameron and Kelker Streets
P.O. Box 1831
Harrisburg, PA 17105
or Whole Earth
Household Store

•

A word of caution: No book by itself can teach you caving. To learn properly, practice and experience in the actual underground environment with a group of experienced explorers is essential. Caving is strenuous and requires good physical conditioning.

Above all, never go caving alone. It's far too dangerous, even for experienced cavers.

CAVING INFORMATION SERIES

These pamphlets cover the field from **Cave Surveying, The Hard Hat,** *and* **Bats** *to* **Hypothermia, Cave Diving,** *and* **Belaying.** *They are highly recommended.*

Caving Information Series
National Speleological Society
34 pamphlets, 161 pp.

$8 postpaid from:
National Speleological Society
Cave Avenue
Huntsville, AL 35810

•

Take nothing but photographs; leave nothing but footprints (and avoid leaving footprints when possible).
—NSS motto

SINGLE ROPE TECHNIQUES

The introduction of techniques for climbing single ropes with mechanical ascenders has revolutionized cave exploration. This is the best available guide to going straight up and straight down. Those Australians must have tough hands, however, for Montgomery says you may not need gloves on short rappels. Don't you believe it. Always wear gloves and avoid rope-burned palms.

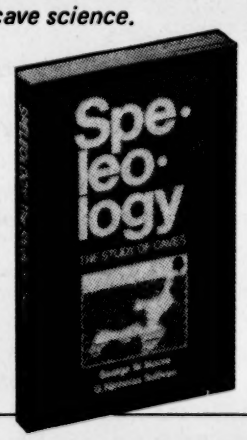
Single Rope Techniques
(Sydney Speleological Society Occasional Paper No. 7)
Neil Montgomery
1976; 39 pp.

OUT OF PRINT
Sydney (Australia) Speleogical Society
Under revision; will be available from caving supply stores by 1982.

When many measurements of air currents must be taken simultaneously in different parts of a cave, sheets of aluminum foil serve as fairly precise anemometers. The deflection of the bottom of the foil being used here in Breathing Cave, Virginia, is measured with a meter stick.
—Speleology

SPELEOLOGY

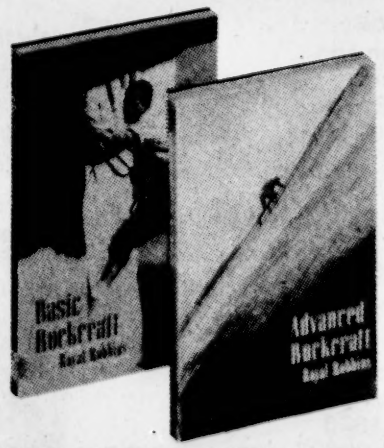
This is the only short introduction in English to the science of speleology. It shows that caving can be an intellectual adventure of the highest rank. There are still many unsolved problems in cave science.



Speleology
(The Study of Caves)
George W. Moore and G. Nicholas Sullivan
1964, 1978; 150 pp.
$6.95 postpaid from:
Caroline House
2 Ellis Place
Ossining, NY 10562
or Whole Earth
Household Store

BASIC ROCKCRAFT
ADVANCED ROCKCRAFT

These books are the best climbing instruction books in print in any language, written by the greatest rock climber of the twentieth century. They can be read with enjoyment by anyone who ever contemplated hopping up on a boulder, and with profit by the most advanced climber. Robbins' contribution to the art and science of climbing cannot be overestimated. If you cave you will climb, and if you climb, read these books.



Basic Rockcraft
Royal Robbins
1971; 71 pp.
$3.70 postpaid

Advanced Rockcraft
Royal Robbins
1973; 96 pp.
$4.70 postpaid

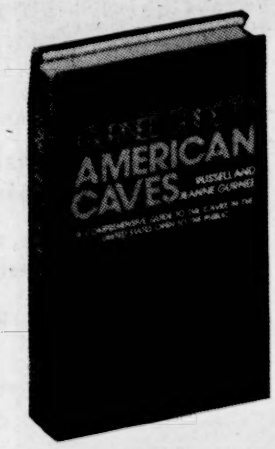
both from:
La Siesta Press
P.O. Box 406
Glendale, CA 91209

→

With our chock well-wedged in solid rock, and a reasonable expectation that the sling is strong enough to hold a fall, all is well as long as the chock stays in place. Here we come to one of the critical elements of the art of chocking. The problem is simply that chocks which are solid when pulled downward may be lifted from their mooring with an upward force. There are several ways this can happen and several ways to prevent it.
—Advanced Rockcraft

GURNEE GUIDE TO AMERICAN CAVES

This is the only guide to commercial caves in America, up-to-date in 1980. It tells you how to get there, what to see, and where to stay. With many stories about the caves, it is complete and excellent. The Gurnees have visited every one of these caves, and they know what they are talking about.

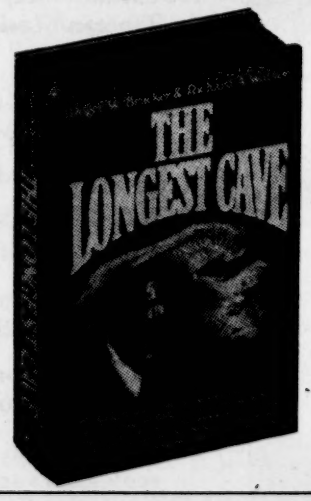


Gurnee Guide to American Caves
(A Comprehensive Guide to the Caves in the United States Open to the Public)
Russell and Jeanne Gurnee
1980; 252 pp.

$8.95 postpaid from:
Caroline House,
2 Ellis Place
Ossining, NY 10562
or Whole Earth Household Store

THE LONGEST CAVE

This is the dramatic story of several generations of cavers whose exciting and dangerous explorations in Kentucky's limestone labyrinths culminated in the big connection between the Flint Ridge Cave System and Mammoth Cave, forming the longest cave in the world. Here is the romance and adventure of big-time caving, told by two of the participants.



The Longest Cave
Roger W. Brucker and Richard A. Watson
1976; 329 pp.

$12.95 postpaid from:
Alfred A. Knopf, Inc.
400 Hahn Road
Westminster, MD 21157
or Whole Earth Household Store

CAVING EQUIPMENT

Caving equipment is so specialized that it is seldom stocked even in mountaineering stores. One main mail distributor is:

The Speleoshoppe
Catalog

free from:
The Speleoshoppe
P.O. Box 297
Fairdale, KY 40118.

CAVE BOOKS AND MAPS

Books on caving are so specialized that they are seldom stocked even in outdoor and sports bookstores. The books reviewed here can be obtained from The Speleoshoppe and many more books on caves and caving are available from the book dealers listed below. Maps of caves are almost never available to the general public, but excellent maps of Mammoth Cave, Carlsbad Caverns, and a few other caves are available from Cave Books and Maps, prints from Speleobooks and Prints. These stores all send free price lists for a stamped, self-addressed envelope.

The NSS Bookstore
Cave Avenue
Huntsville, AL 35810

Speleobooks and Prints
P.O. Box 333
Wilbraham, MA 01095

Cave Books and Maps
1909 McGavock Pike
Nashville, TN 37216

Hands and knees crawl in shallow water
—The Longest Cave

CAVING MAGAZINES

The **National Speleological Society News** *contains stories of cave exploration and adventure illustrated with maps and photographs. Almost everything going on in the North American caving world is covered in the* **News.** *Letters and discussions often get heated. Many cavers read it cover to cover within hours of receiving it every month. The* **National Speleological Society Bulletin** *contains many articles oriented to the general caver who is interested in the scientific aspects of caves but is not a scientist. It is also one of the few major journals for publication of technical articles in cave science.*

Caving International *gives the best coverage of the international scene, particularly of the hottest work in progress, such as the deep vertical caving being done now in Mexico (over 1300 meters deep). The magazine is illustrated with fabulous color photographs, and the editors have high literary standards and look for style in writing. Every one of their eight issues so far is a collector's item.*

National Speleological Society News
Jay Arnold, Editor
$10/year (12 issues)

National Speleological Society Bulletin
James Hodge, Editor
$10 /year (4 issues)
NSS membership (includes both publications)
$18 /year

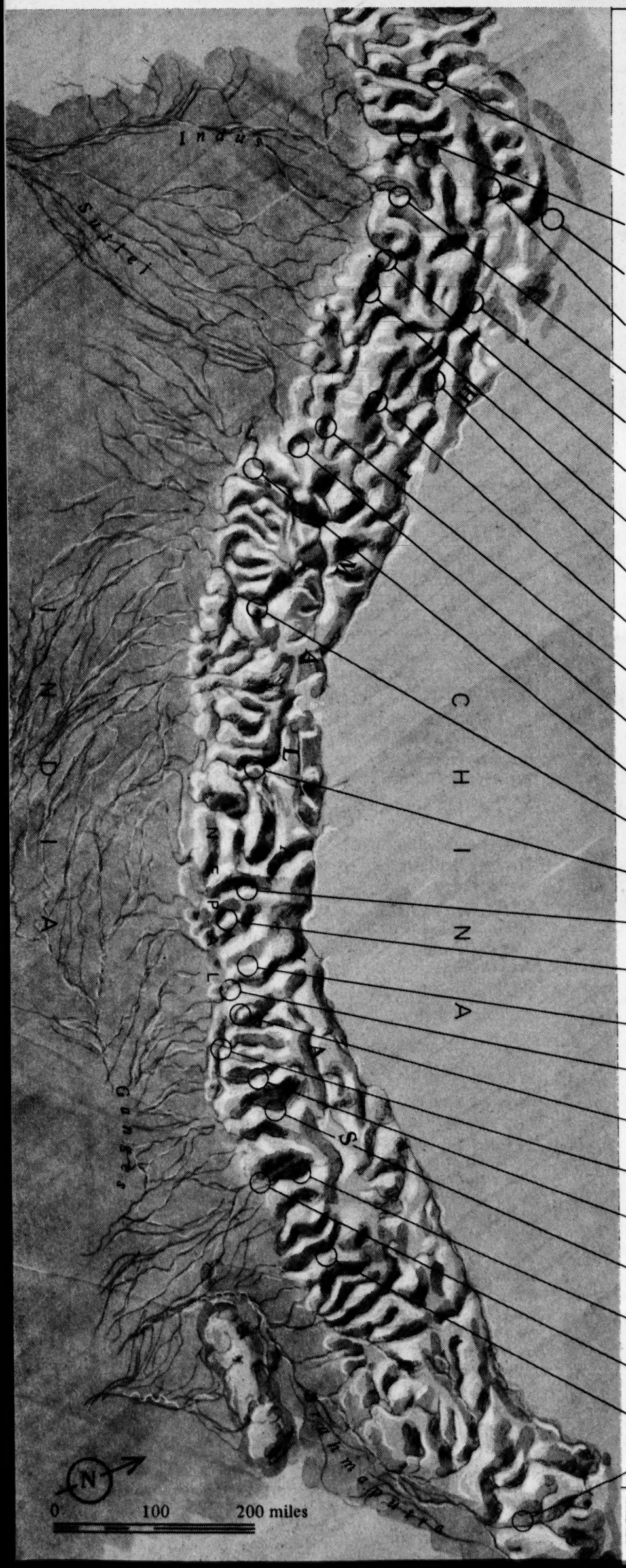
all from:
National Speleological Society
Cave Avenue
Hundsville, AL 38510

Caving International Magazine
Peter Thompson, Editor
$11 /year (4 issues)
from:
Caving International Magazine
P.O. Bag 4014
Station C,
Calgary, Alberta
T2T 5M9 Canada

CAVE CONSERVATION

Caves are fragile in many ways. Their features take hundreds of thousands of years to form. Cave animals such as blind fish are rare, and always live in precarious ecological balance in their underground environments. Cave features and cave life can be destroyed unknowingly by people who enter caves without informing themselves about cave conservation. Great, irreparable damage has been done by people who take stalactites and other flowstone features from caves, and who disturb such cave life as bats, particularly in winter when they are hibernating. Caves are wonderful places for scientific research and recreational adventure, but before you enter a cave, we urge you first to learn about careful caving by contacting the National Speological Society, Cave Avenue, Huntsville, AL 35810.

—The Longest Cave



Below is a list of valleys I am familiar with, with notes. From west to east.

1. Chitmal — $10 plane ride, jeeps, populated, easy food/lodging, opium, pagan, no in winter
2. Swat — bus, very populated, easy food, archeology center, woodworking, hot in summer
3. Gilgit — $18 plane, jeeps in summer, boomtown, easy food/lodging, Muslims, polo
4. Hunza — jeeps, easy food, famous apricots and old people, restricted areas
5. Kangan — bus, populated, seasonal nomads, food, Muslims
6. Skardu — $15 plane, jeeps, porters, mountaineering center near K2, desolate countryside
7. Srinagar — bus, capital city of Kashmir, o.k. year-round, houseboats, handicrafts
8. Kashmir — bus, ponies, walk, footpaths, DAK rest-houses, spring wildflowers, gardens
9. Ladakh — bus, jeeps, trekking, summer only, easy food, monasteries, Tibetans
10. Zaskar — jeep, ponies, bring food, moonscape, Tibetan/Muslim, no connection with Kulu
11. Lahul-Spiti — bus, summer only, o.k. food, Tibetan monasteries, no permit to Leh
12. Kulu-Mauali — bus, year-round, easy food, trekking, hash, orchards, pagan festivals
13. Simla — bus, very populated, developed, British summer capital, restricted areas
14. Garhwal — bus, trek, many holy sites, source of Ganges, Hindu festivals, food, restricted
15. Karhali — ponies, walk, forest wilderness, animal life, winter good, bring food
16. Kali-Gandaki — ponies, walk, most popular trek, ecological variety, fancy food
17. Pokhara — bus, plane, trekking, superb food and housing, hippie resort
18. Mahang — trekking, recently opened, high pass, requires food
19. Gorkha — short walk from road, easy food, old Nepal capital, easy trek, winter good
20. Langtang — walk, easy food, cheese factory, Sherpa-Tibetans, pass closed in winter
21. Katmandu — bus, plane, year-round, medieval metropolis, easy food, bazaars, equipment
22. Solu-Khumbu — $35 plane, classic trek, expeditions, Sherpas, Mount Everest, easy food
23. Arun — $15 plane, walk, easy food, ecological variety, restricted in north
24. Sikkim — $15 jeep, bus, walk, need complicated permit, Buddhists, Mount Kanchenjunga
25. Darjeeling — small train, bus, populated, good short treks, tea plantations, Tibetans
26. Bhutan — jeep, ponies, visa expensive, treks not encouraged, traditional Buddhists, jungle
27. Arunachal Pradesh — off limits

DON RYAN

The first lesson in mountain travel is that you go like a river, with the grain of the land, along valleys, where you find food, shelter and character. The passes are gates, and the peaks beckon on.

Sunrise at Periche Sherpa settlement in Everest National Park, Nepal

LOW-RENT HIMALAYAS

Text and Photographs by Kevin Kelly

THIS STUPENDOUS MOUNTAIN SYSTEM, from Afghanistan's Hindu Kush to the edge of Burma, is more accessible to low-key individual exploration than most lesser ranges. These mountains ooze lessons and education that justify as a pilgrim's goal. A matrix of native settlements enables one to come into the presence of the hills without a tent, without carrying food, without kitchen gear, without the bondage of equipment that would normally hinder entry. But the support of the local culture also eases a reach into the remoter ranges, so if you need to scale peaks, things are often simplified for those with a casual approach. The message is this: for the price of an airline ticket and little else, a flexible person, couple, or (if you're crazy) group can be roaming toward Everest or a neglected alpine flower meadow. I offer guidance through local bureaucratic paper mazes and how to avoid them if possible, tips on what areas are suited for strolling, which high-altitude regions are open to cheap investigation, where to borrow equipment there, the availability of food, and sources of information — biological guides, geological histories, cultural readings, and guides to the trails and mountains, along with maps, some easy to find, some not.

From New Jersey, Kevin Kelly's meticulous, bold, cheap traveling has led to the "Traveling in Asia" survey in **The Next Whole Earth Catalog** *(p. 400) and "Bicycle Haiku — Ride across America" in the Winter 1980* CQ. *–SB*

Once, I squatted on a high windy Himalayan pass, picked on the ground and filled my coat pockets with deep ocean fossils, large ancient spirals of ammonites that littered the ridge. Something big and mysterious has been happening.

Big and mysterious, these heaps and humps of rock attract pilgrims either by the gravity of their huge masses, or by the electricity of human lives. The Himalayas are unique as mountains because a circuit of valley cultures enables one to step lightly in these hills without a ball and chain of baggage. For the most part the Himals are accessible in sneakers. I've used them up to 18,000 feet and have gone months with a sleeping bag and map alone, gliding along footpaths that connect one mountain village inn to another. That's traveling as any native Himalayan would.

There are small cities in the Himalayas, tucked into valleys, crowded with people. NO Sierra wilderness here. Roads thread to meet the towns, so it's easy to begin by coming in on wheels, then going on foot to villages beyond. Where people are, there's food; where people aren't, you've got to bring your own, but that's nearing the edge of low-rent access. It's hard to say exactly, yet an enormous area of the Himalayan range is within a day's walk of someone's house, and perhaps a meal.

FOOD

Near Mount Everest so many expeditions have unloaded leftover supplies to villagers (cheaper than portering it back down) that the zaniest goods can be purchased in lone shepherds' huts at 16,000 feet. The Koreans had just been up before me, so I was offered hot peppered eels in cans. Last year it was Swiss freeze-dried peaches, in pouches. Strange, but welcomed, manna.

Outside of this unusual area and throughout the central Himals, meals are dished in a customary way. For about 25 cents you get all the rice, boiled lentils and dollops of greens you can eat in one sitting. Mountain porters, who do beastlike work, will nonchalantly gobble up mounds of this grub for their 25 cents' worth, making whatever little piles you wolf down seem dainty. Tea with meals is dangerously sweet and costs three cents extra. In the north expect lots of potatoes instead of lots of rice. A meal in Ladakh or northern Pakistan, where barley meal and unleavened bread are staples, will go for 50 cents. The only hints of variety are eggs and milk, occasional glimpses of yak or goat meat, and pieces of fruit. After a month, grumbling starts about food boredom and nutrition, but this is what those little barefoot men who carry 70 pounds up rocky slopes eat. Studies have shown this diet to be sufficient for a healthy visitor. For excitement, and for stoking up for mean hills, we bring treats, fanatically rationed.

If you need or want to bring food, the best way is to buy staples from the last village or bazaar to support you until the next one. Kerosene for fueling cookstoves is available in the boondocks. Recently dehydrated foods made locally are selling in Katmandu (Trekkers Foods, G.P.O. Box 304, Katmandu, Nepal). Ordinarily we bring no other supplies save a bag of treats and a day's worth of emergency meals.

you sit in the cab (grand view, horribly bumpy). For half-fare you float over the cargo in back.

Jeeps begin where the paved road ends and continue way beyond where a sensible person would halt them. No one drives them unless they are imaginatively overloaded with rice bags and pajama-clad passengers. Rates are fixed by the price of petrol, about half again the cost of the same distance in a bus. If I wanted to get someplace very different, real quick, I'd look for a jeep.

Millers waiting for wheat to be milled, Kulu Valley, India

SHELTER

For buying a meal you get to sleep free in your own sleeping bag wherever there is room — on a floor, a loft, or the porch outside. On popular paths there is a 30-cent charge for a string bed. In high altitudes look for empty shepherd huts. Once free, Tibetan monasteries are now 50 cents. Accommodations around Pokhara and the houseboats of Dal Lake, Kashmir, are classed "hippy-deluxe," relatively extravagant. Long-term leases are often made there. On the move in the hills, time your journey to arrive at a village with a shop or inn by evening, buy a meal, sleep wherever they put you, and head off in the morning. Second best, ask at any prosperous-looking farmhouse for lodging and a meal.

WHEELS

Cruise into the mountains on a local bus. For a couple of dollars, you're there. Your luggage goes on top, so don't leave valuables within easy reach of a sly hand. If you stop over, the cheapest inns are found around the bus station. Keep in mind trucks hauling freight in the hills, often more frequent than buses. For two-thirds the bus fare

PLANES

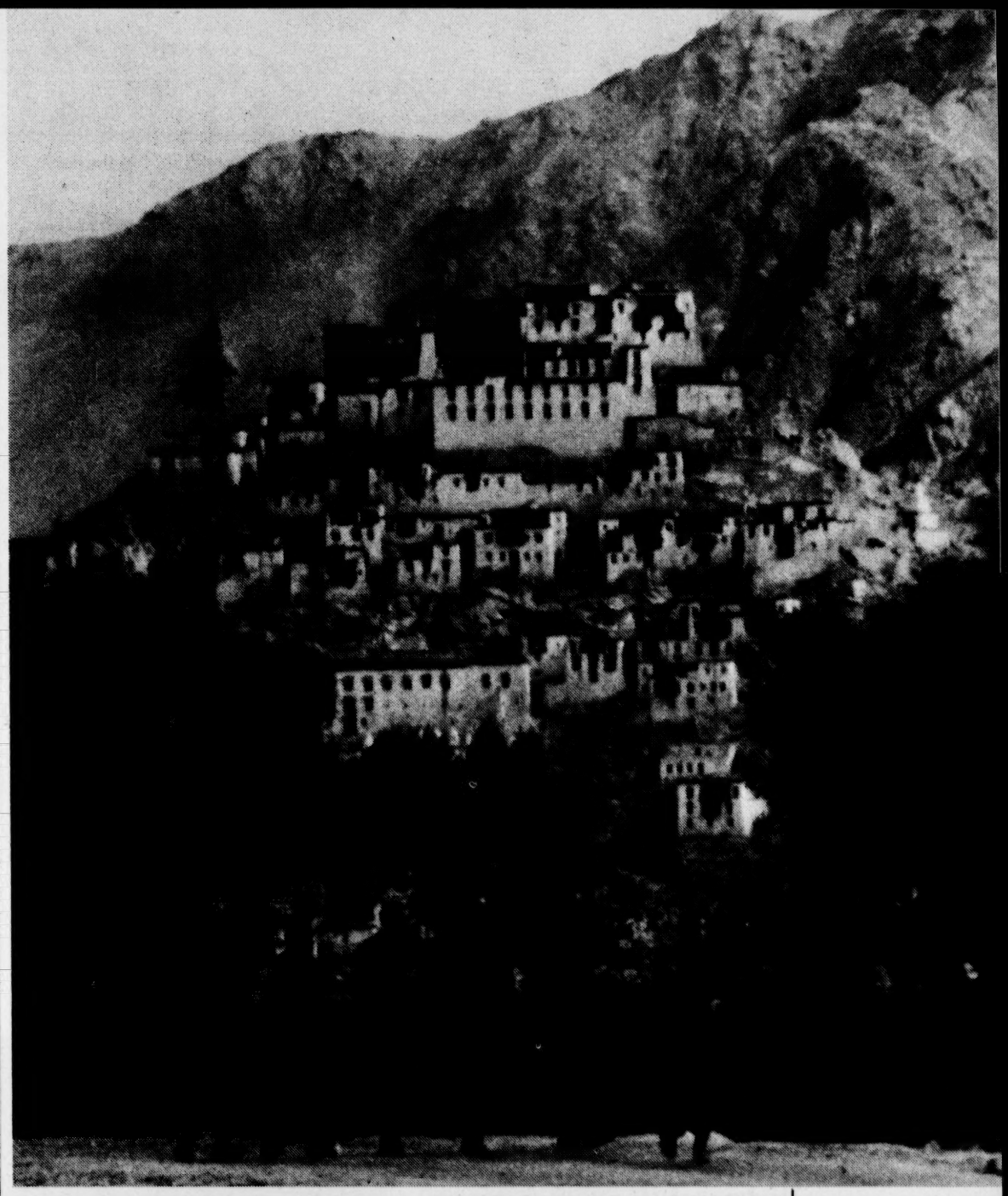
Himalayan planes are a great deal. Apparently locals think so too, as they are heavily booked. Not chartered planes, but scheduled runs of small craft to remote airstrips. Sample fares:

Katmandu to Jomson — $20
Rawalpindi to Chitral — $10
Rawalpindi to Gilgit — $18

They can save you weeks of walking and the money spent on the way. Due to unpredictable mountain weather, reservations are a lie. To fly in and commence walking is dangerous because of altitude sickness. How much sweeter to fly out after a long march to a far corner by climbing aboard a STOL craft, rising above the tiny clearing and zooming over passes you so quietly just crossed. I'd ride these planes for the view even if I had no business going there.

WALKING

Walking is the swiftest way to see it all.



Monks from Tiske Monastery at 11,000 feet in Ladakh. Called "Little Tibet," it's now a part of India

A walker who sweats up and over a ridge will win respect from mountain folk for sharing the same toil they must. Use the familiar art of backpacking as elsewhere, except no more than a handful of items are needed: needle and thread, pocketknife, a bit of soap, plastic bags, and medicines. In a dark land without electricity, candles are the most economical light. One candle should last three days. Also bring a small plastic flashlight. Candles and spare batteries are available in bazaars.

Up high in the snow you must have eye protection just to discern your way. When I need them I make Eskimo-style slit goggles out of cardboard, though sufficiently opaque sunglasses will work, too. The only essential possessions are a sleeping bag and warm coat. One way to travel light, yet high, is to trek around simply and then rent the fancy gear for peak assaults. Tents, down garments, stoves, ice crampons, and other equipment are for rent in Darjeeling, Katmandu, Srinagar, Pokhara, and Namche Bazaar.

PORTERS

Porters are not eager to do the work of beasts, but they are desperate. Unless you enjoy dealing with desperate men, I say have nothing to do with porters. Situations may arise when you need one. Agree unambiguously beforehand: 1) how far the porter is to go; 2) how many days (how fast) he is to travel; 3) whether he needs to return (you're obliged to pay one-half return wages); and 4) how much he is to be paid. The current rate is about $2.50-$3 per day, with a load of 70 pounds. Be ridiculously clear about the agreement. Arrange so that porters secure their own food, or you will soon need additional porters to carry porters' food, ad infinitum. They can be hired in towns with the help of trekking agencies, restaurant owners, hotel managers, or hired on the spot.

BEASTS OF BURDEN

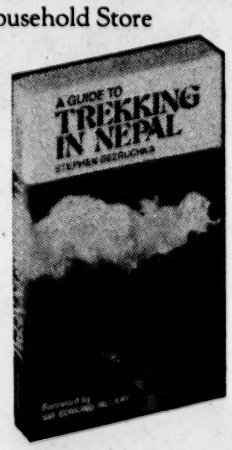
Pack animals carry more, complain less. Unless you buy an animal outright, the owner comes along. Naturally he prefers to lead his animals along routes of known provisions, so fierce negotiation is required to get him to go where you need his animals the most — places without provisions. Fifteen dollars per day is not uncommon. They make the best sense with two or more travelers. When loading, balance is more critical than weight. Retain fragiles and valuables with you — stuff is forever slipping off cliffs.

GUIDANCE

Guides cost about $5 per day. They do not carry loads — they only guide and translate. Instead, use the cost of a guide for two days to purchase this book:

A Guide to Trekking in Nepal
by Stephen Bezruchka
1972, 1981; 256 pp.
4th Edition

$8.95 postpaid from:
The Mountaineers
719 Pike Street
Seattle, WA 98101
or Whole Earth
Household Store



For as long as you wish, Bezruchka will guide you with a steady hand, accurate details, and clear instructions. Specific trailways are annotated station by station, distances reckoned as hours walked. He has expanded information on hiring porters and guides and finding Nepal maps, and hopes to release you from these. His background info on the hills and trekking is unsurpassed, and applicable to the rest of the Himalayas. As I can attest from my own travels and research, what's crammed into this volume is not available elsewhere, not even in Nepal. You'd be foolish not to take him along.

MONEY

Here's a curious game — no one will take your honest local money if it's ripped, torn, or patched, so neither should you accept it from another. For best results bring crisp new money from the bank. Nor should you bring large denominations into the hills; as a courtesy take the smallest ones you can stand to carry. If you travel simply, without porters or guides, it should cost about $3 a day. Riding buses and jeeps, $5 to $10 minimum.

No time to afford cheap thrills? Then pay your dues to an adventure broker

and have a wonderful sojourn to the identical places we go. The 1981 edition of the **Worldwide Adventure Travel Guide** (544 pp., $10.95 postpaid from Ziff-Davis Books, 1 Park Avenue, New York, NY 10016) publishes descriptions and synopses of a dozen companies specializing in Himalayan journeys. Of these, Mountain Travel (1398 Solano Avenue, Albany, CA 94706; catalog $2) seeks the most interesting places. They provide you with all. Trips average three to four weeks. The going rate is $50 to $90 per day [also reviewed **NWEC** p. 430].

Friend of mine, veteran Himal freak, plans his $10 per day excursions thusly: from the Mountain Travel catalog he picks a juicy trek, spies out the itinerary, then follows it, figuring if they can move a group of 40 along it, he can do it with a companion. Organized groups receive no special invitations into restricted areas — they are allowed if and when everyone is, so reading the catalog is also a clever way to learn what places have just been "opened."

MAPS

There is only one perfect map, and you live on it. The rest approximates it, in degrees. Concerning the Himalayas, there's nothing but approximation, some sections worse than others. Foreign grants produce a few maps of famous Nepal. Pakistan and India would prefer no one have maps of their touchy border areas, the Himals. So the best maps are alien. The **U.S. Army Map Series U502** covers the range at a scale of one inch = four miles. These were once available by mail from the Defense Mapping Agency, but are now out of print. Xerox them by going to a map depository, asking for the index, and locating the group of sheets you'll need, usually NG 44 or NG 45 for Nepal. Besides the Library of Congress, most state universities are map depositories.

The most accurate maps of the more fabulous regions of Nepal are gorgeous masterpieces known as Schneider maps, printed with perfection (one inch = 0.4 miles) by Geographische Buchhandlung, Rosenthal G, D-8000 München 2, West Germany. They are exquisite and expensive. You don't fold them: you roll them carefully. Mountain Travel sells six Schneider maps of various parts of Nepal for $10 each postpaid. Price list free.

Smaller-scale (one inch = 12.3 miles), more affordable maps for general use in Nepal are sold for $7 postpaid (24" x 44") by the American-Nepal Map Project, c/o M.S. Holloway, 5831 Hampton Court, San Diego, CA 92120.

The best bargains are Mandala Maps (one inch = 2.0 miles) cheaply reproduced on blueprint paper, sold everywhere on Freak Street, Katmandu, for $1.50. Not available (to our knowledge) in the United States. They are more than adequate for hiking along the popular routes they cover.

A tourist map of Himachal Pradesh (one inch = 5.8 miles) and a trekking guide map for the Darjeeling region (both free) are put out by the Indian Tourist Bureau, Jan Path, New Delhi, India. A blatantly crude yet informative (no scale) map of trekking footpaths and bridle routes in Kashmir and Ladakh is available from Nest and Wings, P.O. Box 4531, New Delhi, India, 110016, for 50 cents, and is also available in Srinagar. The Pakistan Tourist Information Center, 12 East 65th Street, New York, NY 10021, publishes free, dinky tourist "maps" of the following areas which show jeep routes and rest bungalows: the Skardu, Swat, Gilgit, Hunza, and Kashan Valleys.

For the whole detailed sweep of the Himals in one glance, I constantly refer to the common **Bartholomew's Physical Map of the Indian Subcontinent** (one inch = 75 miles). It indicates contoured elevation, major pack animal and jeep trails, and many secondary hill roads ($6.85 postpaid from American Map Company, 1926 Broadway, New York, NY 10023). [The American Map Company is also reviewed in **NWEC** 2nd Edition, p. 398.]

Better than any are the maps and guides published by the Japanese, often by **Rock and Snow** magazine, in Japanese.

WHEN?

In the fall farmers have surplus from their recent harvest to sell you food — but they may run low by spring. Most expeditions schedule climbs in the fall — old snow is gone, new snow comes later, and every valley has perfect weather. You can go at times other than fall, at your own loss.

The lower foothills are delightful in winter. Summer in the eastern half of the Himals is spoiled by monsoon rain. Trekking ceases because: 1) paths are muddy, slippery and treacherous; 2) vital bridges vanish into swollen rivers; 3) the trailsides brim with bloodsucking leeches waiting to crawl through your clothes and sink their fangs into your blood. As any school kid knows, you then need cigarettes to burn them off.

The Vale of Kashmir is okay year round. Its alpine meadows and wildflower valleys are best in spring. For Ladakh and Lahoul-Spiti, summer is the only sane season, since the passes close the rest of the year. Pakistan's highlands have summers that are warm but bearable, winters that are cold but passable in the valleys. The mountains, ordinarily desolate, are Saturnian in winter.

MOUNTAINEERING

One twilight in the Khumbu Glacier region a skimpily outfitted fellow passed me on his way to a solo overnight ascent of a 20,000 foot snow peak. Why and how he did this is described expertly in the vast array of mountaineering literature (every climber seems to be a writer). The Eastern Mountain Sports catalog (Vose Farm Road, Peterborough, NH 03458) peddles appropriate tools for the job and includes a condensed book list. The bibliography in Bezruchka's

Mundu, near Vale of Kashmir, Banihal Pass

A Guide to Trekking in Nepal references all the classics of Himalayan climbing. The most astounding tale told is by Maurice Herzog in his book **Annapurna** (1952; out of print from Popular Library).

Permits are required for expeditionary ventures onto the highest mountains. Contact the Ministry of Tourism in the particular host country. If ever granted, these permits will set you back $1000-$2000.

In Nepal, a set of peaks under 20,000 feet has been delegated for trekkers, who must technically get a permit by applying to the Nepal Mountaineering Association, G.P.O. Box 1435, Ram Shah Path, Katmandu. Permits are good for a month, cost about $50 minimum for each member, and require paper work and observance of agreed rules.

Realistically, who's to know? The only ones who would know or care whether you have a permit might be the border soldiers. Keep 20 miles away. As long as you keep a low profile (don't bring 25 porters), stay clear of the dotted boundary line, and don't die, no one will bother you. You will still need ground permits, where required, to get there and back.

PERMISSION

Visas are obviously needed for each country. Don't let them run out while you're in the sticks, even by one day, or havoc erupts. When doing the paper routes remember: every other day is a holiday, so allow time. Suspicious neighbors make lots of red tape. From west to east:

Pakistan — Technically, permits are required to cross between Chitral and Gilgit, Swat and Gilgit, but this is not enforced. Same for Hunza, Kashmir, and Ladakh. No permits are required within, but one is needed to cross into Himachal Pradesh. Apply at Tourist Officer, Srinagar.

Garhwal, Himachal Pradesh — No permits needed. No foreigners allowed at Gangotri, source of the Ganges River, or near international borders.

Nepal — Look at your map, then decide your route exactly. Apply at the Central Immigration Office, Ram Shah Path, Katmandu. Immediately request a visa extension. To do so you need proof of exchanging $5 per day into Nepal rupees for every day requested. Therefore you should bring: 1) a receipt from a Nepal bank showing proof of currency change; 2) your passport; 3) three passport photos; 4) itinerary of your trek (naming major towns, final destination point, and duration in days); 5) Nepal rupees for permit fee, about 50 cents per day of permit. Do this before eleven in the morning. Return a few days later, after 2 pm, to pick up your papers. Congratulations! You've just organized your first trek!

Darjeeling — It's ridiculous, but a general permit is required from Calcutta, New Delhi (Foreigners Registration Office) or the Indian embassy. In addition, trekking in that area requires permission from the Foreigners Registration Office, Darjeeling, though you can get by without it.

Sikkim — In India, apply at the Ministry of External Affairs, New Delhi, two months in advance. Bring two photos, fill out forms. Ask to pick up permit, which is for three days, valid for two weeks, in Darjeeling. You also need a Darjeeling permit (see above). Arrive in Darjeeling, pick up permit at Inner Line Office. Immediately get extension of Darjeeling permit at Foreigners Registration Office, and proceed to Sikkim. In Sikkim, immediately get extension of Sikkim permit to ten days at Inner Line Office. Trekking is a legitimate reason for extension. There are no fees. Check posts are frequent. On your way out, hope your India visa, Darjeeling permit, and Sikkim permit are all still good, or havoc erupts.

Bhutan — If you pay $100 per day you get a visa and an arranged jeep tour of the country. No other way.

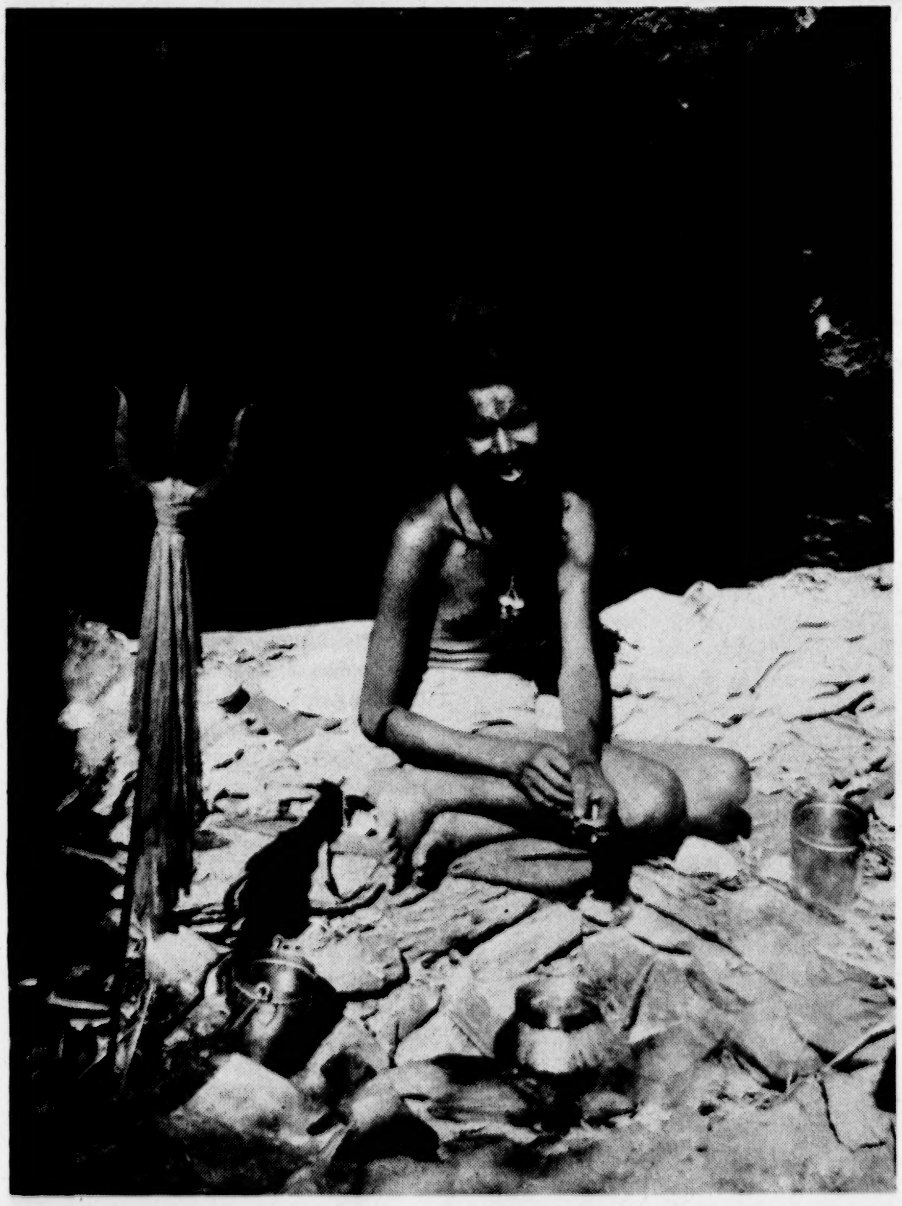
Arunachal Pradesh — Off limits.

SOURCES OF FURTHER INFO

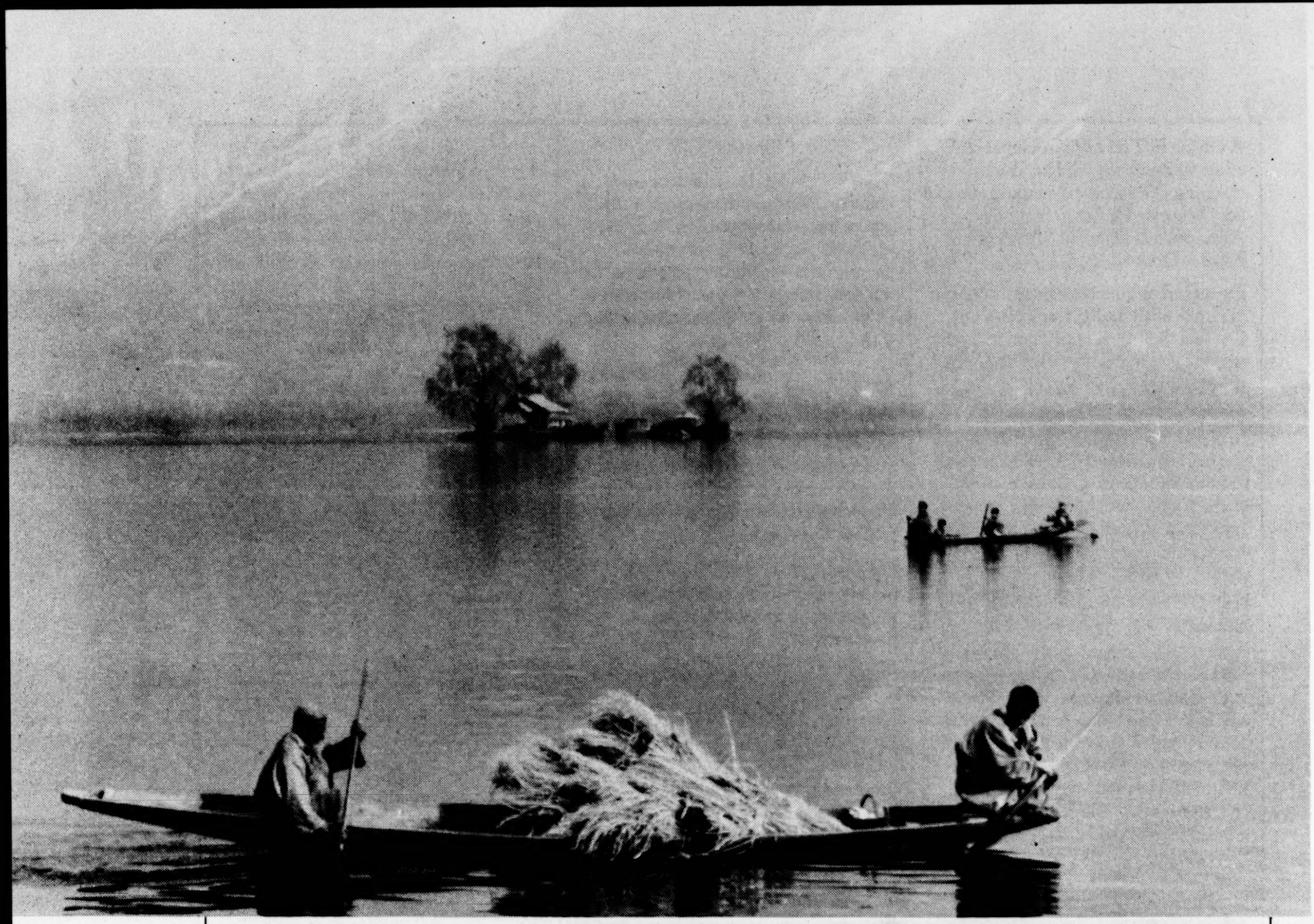
A free booklet called **Trekking in Nepal** is available by writing the Royal Nepalese Embassy, 2131 Leroy Place N.W., Washington DC 20008. Also see **Trekking in the Himalayas**, by Stan Armington (1979, 1982, 95 pp., new edition to be available in 1982 at $9.95 postpaid from Hypocyrine Books, 171 Madison Avenue, New York, NY 10016).

These are libraries within the Himalayas holding books in English about the Himalayas:

- Numgyal Institute of Tibetology, Gangtok, Sikkim
- The Mountaineering Institute, Darjeeling, India
- Tribhuvan University Library, Kirtipur, Katmandu
- Dharamsala Institute of Tibetan Studies, Dharamsala, India
- Manali Himalayan Center, Manali, India



Indian sadhu in Himalayan cave near source of the Ganges



Farmers on the way to market, Dal Lake, Kashmir

Ladakh Public Library, Leh, Ladakh

The absolute most up-to-date information about roaming the Nepal Himalayas is generously supplied by Peace Corps volunteers who live in the hills. Check the bulletin boards at the Peace Corps headquarters, or the Katmandu Guest House, where they congregate while in town.

LANGUAGE

Language here is fluid. It shifts from valley to valley. If you try a phrase you learned and mispronounce it, they just think you're from another valley. I would not head into Nepali-speaking territory without this booklet: **Pocket-Pal** (Summer Institute of Linguistics, Katmandu, $1.25 postpaid from Mountain Travel, 1398 Solano Avenue, Albany, CA 94706). It is one phrase book which is honestly useful, and specifically designed for trekkers. It vocalizes "Can I buy food here?", "Am I on the trail to _____?", "How far is the next village?" Traveling shrinks your horizons, rather than broadening them. Your urgent needs become babyish — food, sleep, hurt — and soberingly simple to convey in sign language and baby talk. A hundred or so thoughts cover all you have to say. Deeper conversations and sanity can be kept in a journal.

SAFETY

Trouble is rare. Good insurance is to look intelligent but poor. If something truly unpleasant should occur, at once notify whoever looks like they have authority or influence: the oldest person in a village, a government clerk, an innkeeper. Make clear your good intentions — in a misunderstanding, ten to one you're the one who goofed, in their world. As a woman you can go alone, and some do, but the bias of the host cultures is against you.

ALTITUDE SICKNESS

This is a significant, though poorly understood, bad thing that can waylay persons of any age or physical condition. That means you. The illness is preventable. It is triggered by a rapid change to the dilute air of very high altitudes. Symptoms begin with headaches and dizziness and finish with coma and death. Rare air itself can apparently be tolerated, as the recent ascents of Everest without auxiliary oxygen prove. Moral: ascend slowly; the higher, the slower. If you feel dizzy, stop and go back down to where you didn't. Experience has shown that constant intake of fluids is vital. Drink enough to keep your urine clear — if it yellows, drink more. A good appetite is an indication of acclimatization. The only cure is rapid descent. One medicine is helpful: Diamox. It's a diuretic, so once again ceaseless fluid intake is vital. Diamox is available without prescription in Asia. You really don't need to worry about this horribleness until you reach 16,000 feet. For a deeper explanation see **Mountain Medicine** by Michael Ward (1975, 250 pp., $30 postpaid from Beekman Publications, 38 Hicks Street, Brooklyn Heights, NY 11201), or the excellent **Medicine for Mountaineering** by James Wilkerson [**NWEC** p. 422].

HEPATITIS

I don't know what to say about hepatitis other than I hope you don't get it. A few years back it was the scourge of Nepal. It's a virus, like a cold, and like colds blooms on a body in stress, say a tired trekking body. Filtering water does no good, neither do chemicals. Boiling helps and so does care in where you drink. Gamma globulin injections lessen the risk. You need one every three or four months. There is a new vaccine being perfected. Get protection if you can. The cure is two months flat on your back, as many trekkers can tell you.

DIARRHEA

Impure water is usually blamed for diarrhea, a serious problem for visitors. In towns, be choosy about what you drink; in the highlands when you're thirsty you often have little choice. Water offered as boiled usually isn't. Boiling your own is a supreme nuisance.

We drink iodine. Just squirt an eyedropper full of tincture of iodine into a canteen, shake, and wait at least fifteen minutes. Halazone or chlorine tablets seem to take a day to dissolve and are not as effective. Caution: iodine can stain a mess in your pack if spilled. After a while water doesn't taste right unless it's pinked with iodine.

In rare instances when diarrhea strikes, the treatment is to wait a day to see if it disappears, then plug it up if it doesn't. Tincture of opium or Lomotil do the trick. Both are sold in Asia without prescription. We call any diarrhea with fever and vomiting dysentery, and in the mountains it should be treated with antibiotics immediately, though ordinarily that might be rash. Tetracycline, penicillin and other medicines can be bought cheaply over the counter in towns.

Good dry socks keep away blisters, but I'd bring some blister pads in case. And a dozen aspirin tablets. Please do not give pills to hill people who ask. It's irresponsible medicine.

OTHER DRUGS

Ganja, opium, and hash are prevalent throughout the range. Wild marijuana carpets sections of the foothills and warmer valleys. Not too long ago it was hardly considered valuable. The moderate use by some locals is in contrast to the frenzied covetousness shown by troops of western youths. For many, dope is a big attraction of the Himalayas. Kulu Valley has famous handrubbed hash, shaped by shepherd boys and exchanged for chocolate. Chitral Valley specializes in fancy pressed stuff — little cakes embossed with a gold logo. I have also seen baseball-size lumps of hash come out of the Solo-Khumbu region in Nepal. The legality of these drugs is a hazy point, but they are discouraged by each of the governments and a few users are busted.

NATURALLY

Curiously, the crest line of the Himalayas does not delineate a watershed. Both the front and back sides of the Himals shed water into the same sea. Some rivers, like the Brahmaputra, run a quarterback sneak around the end of the range. Others, like the Kali Gandaki, bore clean through the middle in terrific canyons, four miles deep, a world extreme. The actual subcontinental divide is traced along the edge of the Tibetan plateau 100 miles to the north, and, on the average, 10,000 feet lower. Other geological surprises are contemplated by Toni Hagen, a Swiss geologist who spent several decades mapping Nepal on foot, and recounted in his fine, lyrical book, **Nepal** (1961, out of print from Kunnerley and Frey, Berne, Switzerland).

The resident ecologist is Robert Fleming, Jr. (Box 229, Katmandu, Nepal), author of **The General Ecology, Flora and Fauna of Midland Nepal** (1978, Tribhuvan University Press; not available in the United States; write Fleming for price). Zoologist George Schaller (**Stones of Silence**, 1980, $16) and Master Writer Peter Matthiessen (**The Snow Leopard**, 1978, $14) dazzle the reader with finely tuned observations of men intertwined with wild animals. (Both prices postpaid from The Viking Press, 299 Murray Hill Parkway, East Rutherford, NJ 07073 or Whole Earth Household Store.) None can compare with Jim Corbetts' classic, **Man Eaters of Kumoan** (1944, out of print from Oxford University Press), a bouquet of supreme, loving, and bewitching stories of man-eating tigers, told in a fierce beauty that would shame Jack London.

The same Robert Fleming, Jr., co-authored with his father, Robert Fleming, Sr., a wonderfully solid field guide to the birds of Nepal, Sikkim, and Kashmir. It's a fine book, practical and with extensive coverage, called **Birds of Nepal** (1979, 349 pp., $22.50 postpaid from Mountain Travel). Migration flyways skimming the mountains and the contracted climate zones created by altitude in the tropics provide room for over 700 species of birds, nearly 400 of which are found in the Katmandu Valley alone.

Two other natural-history guides written for Nepal but useful throughout the Himalayas are: **Himalayan Flowers and Trees** by Dorothy Mierow (1978; Sahayogi Prakashan, Katmandu), and **Commoner Butterflies of Nepal** by Colin Smith (1976, Katmandu Natural History Museum). (Neither is available in the United States, to our knowledge.)

Official maps indicate four national parks in Nepal (Chitwan, Everest, RaRa, and Langtang) and two in the Indian Himalayas (Corbett and Manas). In fact, all this really means is that an attempt has been made to accommodate visiting naturalists, tourists, and dignitaries, guiding (herding) them along limited routes within the parks' arbitrary boundaries. All the while firewood gathering, deforestation, and poaching go on as usual. There is about a two-dollar entrance fee at most of them, and little encouragement to camp on your own, but it's not difficult to do so in nearly the same style as trekking.

Would you like to explore a genuine Himalayan wilderness, so wild that both maps and libraries are silent about the region? So distant that not even legends have returned from it? It's called Arunachal Pradesh (Province), the caboose of the Himalayan train, the easternmost portion of India, where the Himalayas peter out into Tibet and Burma. As far as anyone knows there is one road, nightmarish sweeps of tropical rain forests, headhunters with bows and arrows, and untrod icy peaks biting like holy fangs above the jungle. Naturally, you're not allowed to visit.

Mountains, even nearby ones, are made remote by chopped ridges of gravity, and demand an intelligent energy to move in their presence. Faraway ones demand more. Go pilgrim.
Step brightly. ■

Shandur Pass, near Chitral, Pakistan

MOUNTAINS AS GODS

ONE EVENING IN EASTERN Nepal I dropped into a teahouse where many of the porters for the 1979 German Everest Expedition were staying. The porters had left the roadhead of the Everest Trail, Lamasangou, only ten days before, and the local villagers were asking them the recent news. As is the custom in Nepal, they followed a certain protocol:

"Where are you coming from?"

"Lamasangou."

"How many of you coolies are there today?"

"Forty."

"How many rupees do they pay you a day?"

"Twenty-one."

"Where are the sahibs?"

"Coming later."

"Are they going to a Himal (snow peak) or are they just wandering?"

"Himal going."

The man who spoke for the other porters never looked up from the floor. He was wearing a pair of dirty white shorts and a T-shirt and nothing else. He was not one of the famous high-altitude Sherpa porters, but just a farmer from the lower hills. His addition to the thirty-kilogram load he carried for the expedition was a double fistful of popcorn tied into a thin blanket he carried to sleep in. He seemed to snap out of his daze when I interrupted the dialogue of the traveller and the villager by asking, "Which Himal?"

"Which Himal? Which Himal? I don't know. Where they go? How they come? What they do? I don't know. I know their baggage. I know my feet and today's trail. I know how many rupees they will give me today."

Down in a tourist hotel the chief of the coolies, the sirdar, a well-dressed young Sherpa, was counting off the loads as the coolies dropped them on the wooden floor and collected their day's pay. A young German woman was accompanying this advance supply party. I sought an explanation of my encounter with the coolie in the teahouse from her.

"It's a private German expedition with most of the financial arrangements made by one member of the expedition."

"But why do they want to climb Everest?"

The Sherpa standing around laughed and said, "On the yak trail up the icefall." The Germans would go up the same route that all but one or two of the fifty Everest expeditions since Sir Edmund Hillary have used. It is a trail so well-worn as to be, in the Sherpas' eyes, a "yak trail."

She smiled, seeming to brush off the Sherpas' good-humored derision, and said, "He's climbed the tallest mountains on every continent — Africa, North America, South America, Europe. So all that's left is Everest. He wants to climb it. Mainly it is for him."

I insisted, "But it's such a lot of money just to be the ninetieth person on top of Everest. I can hardly rationalize the risk and expense."

Very sure of her response, she countered with,

Author Laird has lived on and off in Nepal since 1972, when he was 18, and speaks Nepali. He spent a year and a half with the Sherpa in eastern Nepal, near Mount Everest. At this moment he's on his way back there to live. He invited one of us to visit: "I could get you a house on a cliff beside a waterfall where ravens steal your potatoes while you scrub them. Besides the noise of the waterfall all the time falling over the 1,000 foot cliff the noise and glare of the Milky Way at night is deafening, blinding." —SB

→ One of the "old men," Sherpa hermit/painter Leshley studied in Tibet for twenty years. He often reminds you that you are going to die and asks how you will use the time you have left.

MOUNTAINS AS GOALS

Text and Photographs
by Thomas Laird

"It's his money. That's what he wants to do with it. Just now it is providing three hundred jobs for the locals with the luggage. If a European dies trying to get to the top, well, it was his own decision to climb."

"And for the Sherpas?"

"I have met many Sherpas who like to climb high. Often when they reach the high camps carrying loads they want to go on to the top. And why shouldn't they, when it is easier for them up there, even when they are carrying loads and we aren't?"

"But might not their desire to go to the top be influenced by knowing that once they have been to the top of Everest they are guaranteed work with the next expedition? I have met many Sherpas who say they go high only for money."

"Yes, there is the financial question. But some Sherpas do like to climb high."

"I just don't understand you climbers. When all of you have climbed Everest what will be left for you? The mountains on the moon?"

The knot of young Sherpas standing around all laughed aloud and one shouted out with the greatest good humor, "And we'll go there too if they pay enough!"

Since the first British expeditions, which all failed to reach the top during the 1920s and 1930s, the Sherpas have been the preferred high-altitude porters for the tons of equipment required to put two men within striking distance of the summit. The Sherpas have been living around Mount Everest for five hundred years, and it was discovered that they were uniquely adapted to the often debilitating rigors of high altitude.

Though the young Sherpas have sought out this work for the good wages it provides, the purposes of the mountaineers they aid have often been in direct conflict with basic concepts of Sherpa society. To die above the permanent snow line is believed to guarantee rebirth as an ever-hungry ghost. The Sherpas, like all Buddhists, regard the moment of death as a critical juncture. It is a moment to be closely observed, not blurred by drugs or the sudden terror of an avalanche.

The Sherpas have been used by men from another culture — one that says we can climb a mountain "because it is there" — to assist them in climbing that mountain. The Sherpas have benefited from this arrangement financially. They have attained a noticeably higher standard of living than the other tribes that inhabit rural Nepal. But they have paid a price.

Sherpa men, drunk and enjoying it

The most visible sign of this price is the remarkable distinction between what the Sherpas call the "old man" and the "new man."

Renzen is a middle-aged Sherpa man who dresses in the traditional woolen robe. He is an "old man."

"Twenty years ago we grew our own food, made and wore our own clothes. No one had any cash money and no foreigners came among us. Things were peaceful. Now we wear the clothes and eat the food of the Swiss and Americans, the foreigners. We have money now but less land because there are more and more children now, more of us. Things were better before.

"This year the Swiss come to climb one goddess of ours. You call her Numbur. They give the government in Katmandu lots of money [the climbing permit fee] so it is good for them there. Here it will give some people work and money for a while.

"But how would you feel if someone came and climbed up on your head? She will be angry, but they live so far from her that they do not care what humor she is in. We will lose animals, the young ones at birth. We will have too much water or not enough. Our harvests will be poor. Or the young men will be killed with the Sahibs on the mountain."

The Colonial British, the first western people to attempt to climb Mount Everest, dismissed any Sherpa disinterest in their plans of conquest as local superstition. Since until 1950 entry into Nepal was forbidden to all but Indians, Bhutanese, and Tibetans, all the early Everest expeditions were forced to approach Mount Everest from the north through Tibet. The porters were young Sherpa men in search of

Panbouche, a Sherpa village at 13,000 feet in the valley of the Milky River, which begins as meltwater from the glaciers of Mount Everest

fortune who had sought out the British in the colonial hill station of Darjeeling in India.

General Bruce, the leader of the early expeditions, had no qualms about straightforwardly molding the locals to his own needs. He felt that with the "proper handling" the porters could be made to work harder at higher altitudes.

He quickly found out that offering the Sherpas more money or their names engraved in stone (or printed in gold leaf, depending on his mood) was not a sufficient motivation above twenty-six thousand feet. At about this altitude the

A Sherpa porter

Sherpas would all succumb to lack of oxygen. Only very driven men would go further, and that the Sherpas were not.

The General realized this and tried to change their minds. ". . . A properly trained team of porters is a prerequisite for climbing Everest . . . they must be made to take an interest in the proceedings . . . it is important to interest them in the objectives of the expedition, part and parcel of which they must feel themselves . . ."

The last inhabited place before approaching the base of Mount Everest from the north was a thriving monastic village called zaRongphuk. The Abbot's name was Ngwang Tenzing Norbu and he is still respectfully remembered by older Sherpa as a great teacher and the focus of the last period when Buddhism flourished among the Sherpas. Some Sherpas recall that he said of the British, "The Dharma of these men is no good. I have met and talked with them, these men with white eyes and yellow hair. Buddha Dharma men should not go with or meet these men because their Dharma and ours are opposite. Some Darjeeling Sherpas have gone with them for money.

"None of this is good for the people or for our gods. But as the central Tibetan Government has given them a pass no one should hinder them in their passage."

The abbot also kept a diary, sections of which have been translated by A. W. McDonald.

"In the third month of the year once again a group of thirteen British Sahibs with a hundred coolies pitched their camp in front of the monastery . . .

"The next day I greeted the General . . . 'Where are you going?' I asked.

" 'As this snow peak is the biggest in the world, if we arrive on the summit we will get from the British Government a recompense and high rank,' he said.

". . . After saying this they took their leave . . . they established a big camp near the mountain . . . Making use of such instruments as iron pegs, wire-ropes and crampons they strove to ascend the mountain. They climbed with the most extreme difficulty. . . . One day, with a roar, an avalanche occurred and some men were projected over the cliff face. . . . The leader of the expedition sent to where I am fifteen silver coins with a request to perform the rites for the dead. I was filled with great compassion for their lot who underwent such suffering on unnecessary work."

Later the expedition returned to the monastery and met with the Abbot once again. He wrote, "The leader started by saying, 'Previously I sent money with a request for the death rituals for the seven coolies who died. . . . Did they arrive?'

"I asked, 'Are you not weary?'

" 'Me? I'm all right. A few men died,' he replied and was a little ashamed."

At first, the effect of the few young men working for the expeditions was minimal on Sherpa culture. By the time Sir Edmund Hillary and Tenzing Norgay finally succeeded on Everest in 1953, though, the number of Sherpas working for the expeditions was so great that it began to have effects throughout Sherpa society.

It was the official opening of Nepal to the outside world that gave Hillary and Tenzing access to the relatively easy southern route up Everest. Their much-publicized success on Everest, coupled with this sudden political change in Nepal, began to attract the attention of the modern tourist.

In 1979 more than ten thousand tourists visited the homeland of twenty thousand Sherpas, Solu Khumbu. In 1976 Solu Khumbu was declared a national park. This was done to try to control and repair the ill effects of such mass tourism — large-scale deforestation, the result-

Himalayan valleys are enormous and Sherpa houses often quite isolated.

ing erosion of the delicate high-altitude environment, and societal disruption among the Sherpas.

The origins of environmental disruption are easy to trace. The tourists demand big bonfires at night. But the trees that grow in the areas where most of the tourists are concentrated take one hundred and fifty years to reach maturity. Fifty percent of these forests have disappeared in the last ten years. Topsoil

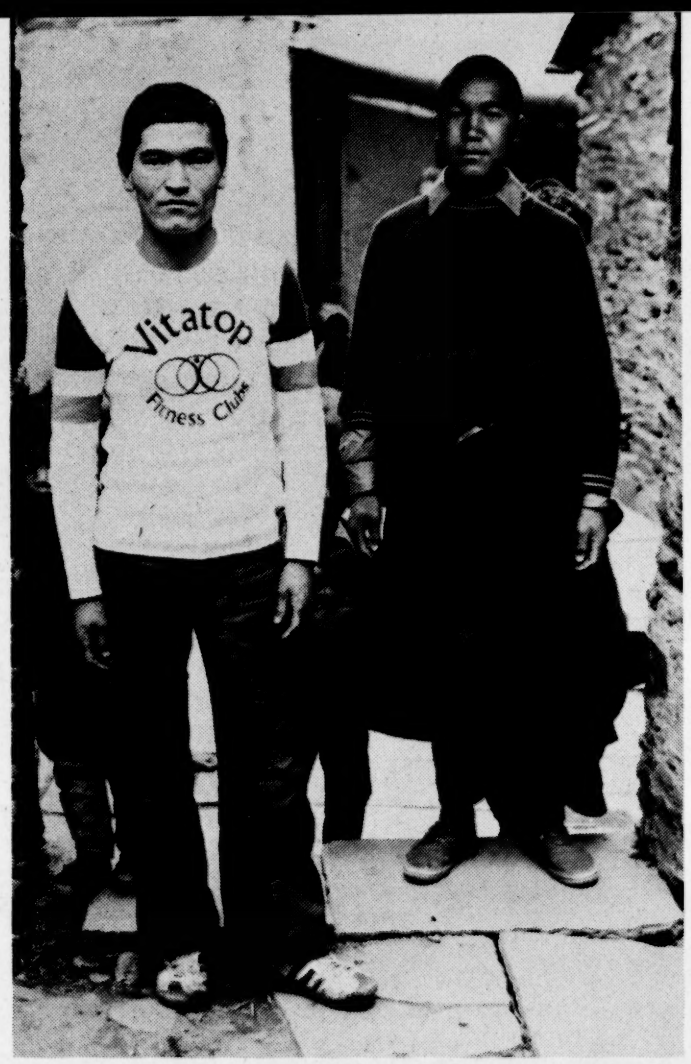
erosion is increasing because of the deforestation. Field productivity is declining because of the loss of topsoil. Flash floods also occur because without the trees, the rainfall runs off the land at a faster rate. It was not tourism alone that set off this deforestation, but also the earlier destabilization of the population balance through the introduction of the potato. The two have had a cumulative effect.

In an odd way many of the things that the older Sherpas said would happen if they "offended the goddess" have in fact happened, even including those that seemed, originally, the hardest for the western mind to accept, such as changes concerning the fertility of the land and the availability and flow of water. Perhaps the concept of a "mountain goddess" is more complex than it first appeared to be.

The mechanisms of social change are just as visible as the mechanisms behind the destruction of the environment. The media blitz that overtook Hillary and Tenzing immediately after climbing Everest put the word "Sherpa" firmly in the world's vocabulary and made the beauty of the Everest region well known. At that time Hillary decided to repay the western debt to the Sherpas for their untiring service to the many expeditions.

Maybe he felt some of the shame that General Bruce is alleged to have felt. Certainly his motives were altruistic, if not very well thought out. He says that some Sherpas asked him to build schools for them. He is reported to have approached the whole thing by simply saying, "What these people need is an education."

Schools were built in many different villages and were set up along secular western standards. An airstrip was built to fly in the tin roofing for the barracks-style buildings that housed the schools. In one stroke these two steps dramatically, if unintentionally, accelerated the



Young Sherpa men, one from a Hillary school, one from a monastery school

extensive social and economic changes which had been brewing among the Sherpas since the time of General Bruce.

Ninety percent of the ten thousand tourists who came to the Everest region in 1979 flew in and out of Hillary's first airstrip, Lukhla. They found plenty of young Sherpas speaking "Hillary School English" who were eager to be their guides. Speaking English and being able to adapt to foreigners were soon economically reinforced tendencies throughout the Sherpa population. Unfortunately, if young men and women go to the Hillary School they do not go to the traditional Sherpa school, the monastic

Why did Sherpas suddenly start going to Darjeeling to find work? Why was there a flowering of Sherpa Buddhism from 1900 on? Because of the potato.

Contact between distant cultures usually implies contact between their respective environments. The Himalayas gave Britain the rhododendron; Britain gave the Himalayas the potato.

Just before the turn of the century the potato found its way from a Britisher's vegetable garden, probably in Darjeeling, to the Everest region and the rest of Nepal. This set off a predictable chain of events. The potato created a noticeable surplus in available foodstuffs. The population began to expand.

Besides the population expansion, the potato at first allowed a pool of excess capital to form. With this the Sherpas began to engage in the existing trade between India and Tibet as middlemen. The capital was also used to build the first Sherpa monasteries — and the potato had already created the population surplus to fill them.

Soon, though, perhaps at the time of a bad harvest, the potato-created population began to feel pressure to expand outward. The potato had disturbed the old balance between population and environment, just as DDT and vaccinations have done in other environments. Products from one culture or environment tend to destabilize other environments, with both "good" and "bad" results. In the case of the Sherpas the benefit was the surge of capital; the cost, the surge of population outwards.

Those Sherpas who left were attracted to the main center of Indian-Tibetan trade, Darjeeling. The British were quick to notice the strength and cheerfulness of these arriving hillmen and quick to exploit these attributes. This exploitation was, again, not without benefit for the Sherpas, but these benefits were not without cost. — T.L.

school. If they work for expeditions they are not monks. As the Sherpa monasteries never had any control over the people except their good will, the monasteries are in a state of decline. They had been the only vehicle for the passing of Sherpa culture and mores in a written form from one generation to the next. The schools helped to both destroy the old order and create the new.

Dorjee is a "new man." He is dressed in jeans, Adidas sneakers, and a sweater that says "Vitatop Fitness Club." He has worked for the expeditions and with the tourists as well. "Yes, I have been very high, to six thousand meters. The higher we can go the better, because the foreigners say we are very strong when we go high, like Tenzing Sherpa. When you go very high, then very sick; even for Sherpas, very high, very sick.

"They give much money if we can do hard work up high; more high, more money. We try to go to top because they give us good baksheesh if we do. We must work hard."

"If no one gave money would you go so high?"

"No, because dead . . ." he laughs aloud. "Everything is money, you know. Many Sherpas think this, the young men.

"Look, if we have much school, much reading, we could be a pilot. A pilot they make much money, but if accident, dead. If not accident, they are rich. We are the same with expeditions. If dead, dead, not anything. If not dead, then you have a lot of money.

"For school I went to Hillary School in my village. No one goes to the monastery any more. Oh, some few ones go. I have one uncle who goes to the monastery to study Sherpa writing.

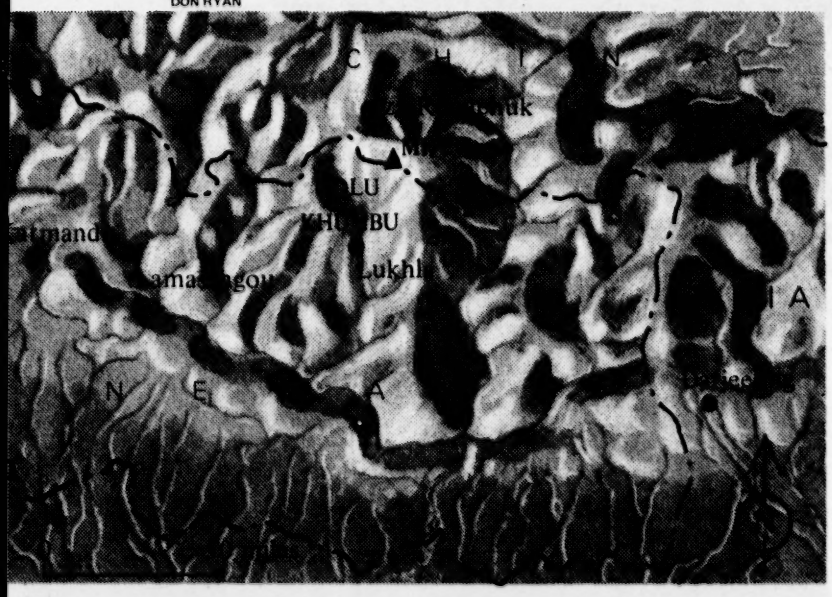
"I went to the Hillary School, though, for five years. There they teach English, geography, math, grammar, and Nepalese. They taught us in Nepalese language, not Sherpa language.

"At the time when the Hillary School first began there was one Sherpa leader. Some people got a little crazy, some fought, because they saw the writing at the school and it was only Nepalese writing, not Sherpa. This is Nepal, you know, and so the Nepalese government said, 'You have to write in Nepalese, otherwise no writing.'

"This Sherpa leader said, 'No, the children must learn to write in our language, not Nepali.' Then the government says, 'All Nepalese who live in Nepal must learn Nepalese writing.' So after this time when the people went crazy they teach Nepalese in the Hillary School. Now I cannot write in Sherpa, I write Nepalese.

"Before this was not Nepal. Our fathers and mothers, they taught us the Sherpa ways, the Sherpa language. But after all the Hillary School people came, they said, 'Oh, your child must go to school and we must teach in Nep-

DON RYAN



Young Sherpa and Tibetan boys at a monastery school — Rainbow Island of the Dharma Monastery. They are learning to read and write and commit Buddhist texts to memory. They help out in the kitchen and with the chanting in the godhouse.

alese.' They said many things no one had ever said before.

" 'You must wash, you must wash, you must wash, otherwise you must get sick.' Before no one ever said things like this.

"When we stay here, when we are not dead, it is good to read Nepalese. But when we die we must go to the gods and read books in Tibetan, so it will be no good then. It will not matter how is our skin, but how is our mind. For this life the Hillary school is good, but for the next . . ." Dorjee laughs.

"At the time that I was small all was Sherpa fashion. Now all is changed. Now that this new fashion is here the National Park people are unhappy when people build a new-fashioned house. They say, 'You must make Khumbu Valley like it was before, you must make just like that.'

" 'Oh, no!' we say, 'we don't like to make the same as before. It's new fashion now. For us it is better now with metal roofs and other new things. Now everything is clean. It's better than before.'

"Now in National Park they put roof on one government building and they first put aluminum on the roof and then stone on top! Foreigners say, 'Stone is good. Aluminum does not look good.' Sherpas say, 'Stone was good before, now it is not.' " Dorjee found this very funny and I found myself laughing just as hard as he.

When I first met him he was very careful with his words. Though the Sherpas are very raucous among themselves they handle foreigners with care, anxious not to ruffle the feathers of the goose that lays the golden egg. Switching back and forth between Nepalese and English and drinking a few glasses of the local beer produced a rapid thaw, though. His perfect white teeth gleamed in a smile more and more often.

"They tried to teach me English at the school but I could only speak a 'little bit, little bit' when I left there. I was thirteen.

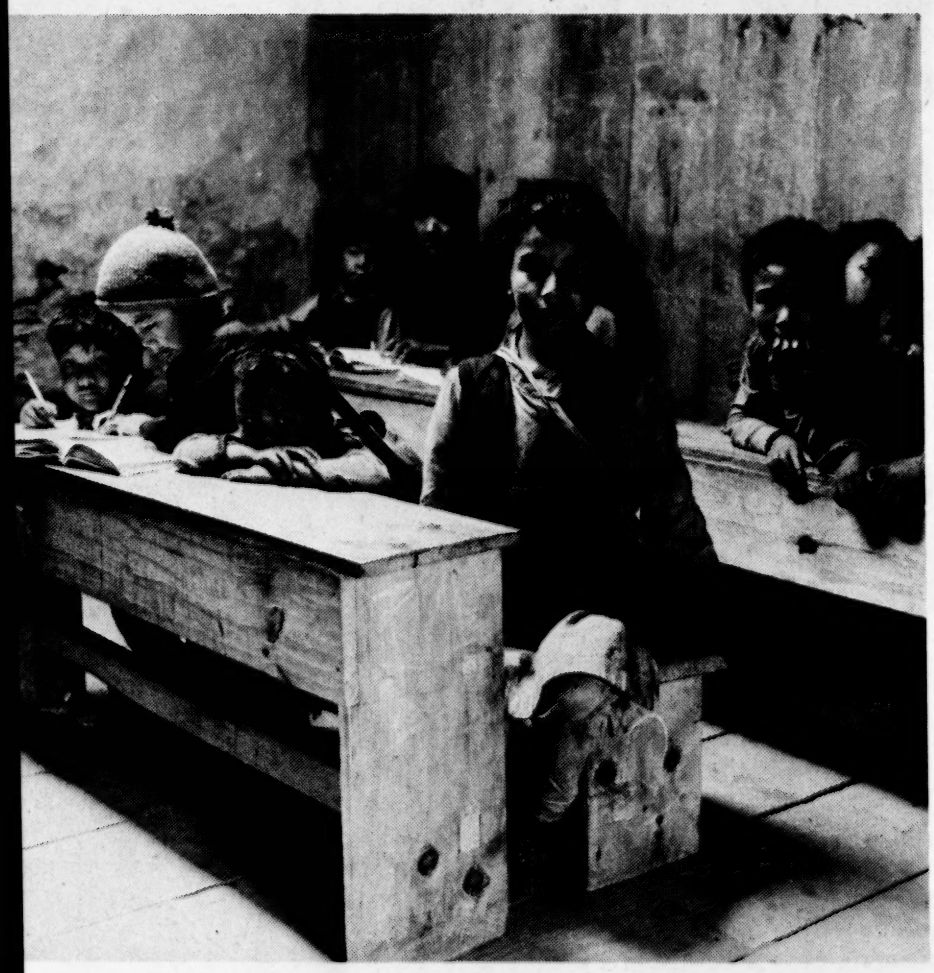
"Then I only worked with the fields and the yak and stayed in the house of my father. I had never been with the tourist.

"I had only seen a few foreigners when I was a boy. First time the Hillary group and then afterwards they came to climb Everest every year. Slowly the tourists began to come. When I first saw them I thought, 'Oh, very interesting, they have nice clothes, big bodies and white eyes too.'

"But I never went with the tourist and still spoke only a little bit of English. Then one man from Mountain Travel [a United States-based company selling exotic travel, p. TK] asked me to come to Katmandu and go with tourists, not expeditions, just trekking. When we go with tourists then we learn more and more English. So I went first as a kitchen boy with a group of sixteen German tourists and this way began to learn this work.

"Many Sherpa boys think best way to learn English is to work with tourists. If we speak English very well and this then we can go with the foreigners to foreign countries. It would be good to go because it's very nice country; we can make a lot of money, a very nice country. The foreigners work one day and make maybe big money. Here make little.

"There is one other way to go to foreign countries. There was one American Women's Expedition this year and some Sherpas they marry some of those women. Now Sherpas say, 'For Women's Expedition you not have to pay, I work for free.' " We both laughed.



Many of the boys in this Hillary school walk hours each way to attend.

"I can make much more money trekking than if I stayed in my village, but the biggest money is with the high expeditions, not with trekkers. When I go very high with expedition work, I go just for the money."

The mountaineers just cannot accept this, even today. By coincidence, Dorjee was the subject of a recent article in a European mountaineering magazine where the author alleged that his friendship with Dorjee was "sealed by all the difficult hours together on the mountain, by all the movements of the heart. . . . (Dorjee) is a storyteller and a poet who never tires of telling stories and singing songs about the beauty of his wife, his country, and the mountains. Mountaineer and troubador . . ."

But Dorjee is not telling me about his love of the mountains. He says, "I had some friends die on the French and Italian Everest Expeditions. When we see our friends come back dead from the mountains we say, 'Oh, this work is very bad,' but the problem is money, you know. It is very dangerous but we need the money. We can't make good money with the tourists. The big money only comes from the high expeditions."

Dorjee never spoke with resentment about the deaths of his friends, though he never spoke with "aesthetic joy" about climbing mountains. He did feel that the Sherpas take the worst of the risks for the western climbers.

"Up high the foreign climbers, they go through the dangerous tunnel or over the crevasse only a few times. The Sherpa must go through the dangerous places many many times because we must carry all the equipment and food for the climbers. We must stock the camps that they will visit only a few times. And when the foreign climbers cannot find a way up they call us to come find the way. This work is hard.

"It is difficult for us young men. We cannot leave here and here there is only trekking work and we have no machines. We can't make big money here.

"If we speak much English and know the ways of the foreigners we could go with the foreigners to foreign countries. This way we could make a lot of money. But how is it? Could we make a lot of money with the machines?

"The old men didn't work for money. They just did the field work and the yak work. Maybe for us, when we get old, it will be the same. When we get to be fifty we must stop the expedition work. We will have to do the farmer work again. It will be the same for all of us young men because there is no other work; when young, we go trekking; after getting old, we must do the farmer work if we are to eat.

"But I want my children to have other work. I want my boys to go to school, not just a few years like me, but to learn to speak English and Nepalese very well so they can work in the office, not carry heavy loads."

It is the subtle, gradual changing of the Sherpa will, the bending of it with money, that is the costliest result of our climbing a mountain "because it is there."

Dorjee is a farmer's son who works for a living. His father still lives his life, growing food, tending yak. He never thought of "making a living." Dorjee has, and though the work with tourists and mountaineers does not supply him with all the money he once thought it might, he hopes to educate his children so that they will never carry a load and never weed a field. If he succeeds in forming his children according to his new vision of the good life, there will be other things they will never have or feel or do as well — things Dorjee cannot predict.

Just back from Mount Numbur (21,000 feet), this young Sherpa porter will give a large part of his earnings to his mother until he is married and has his first child.

A god lives in Lake Baltanga (13,000 feet). The sense of geologic time in such places renders all men into scurrying blurs.

IN SHERPA SOCIETY WHEN you want to know anything about the gods the common people normally all say the same thing, "I wouldn't want to tell you a partial truth, or a mistake. You should ask the Lamas, they know very well about the gods."

The reincarnate priest or Lama of Thyangboche is widely respected as one of the most learned Sherpas.

"The Lamas of long ago arranged the houses for all the gods. From their Mun[Will][1] came the energy to place this god here and that god there.

"Like the Hindu stones [stone statues] which are nothing but that until many people over many centuries have given from the energy in their Mun to the stone, again and again. Then it acquires power.

"Just so with our mountains. The Lamas of long ago arranged the land with the different powers in a certain order. After that we many small people have also gathered our Muns' energy during our ceremonies, and through our actions and feelings, to give to the mountains, too. Both the large and powerful Muns and the small ones are needed.

"The gods' power comes from the Mun of men and is weak or strong according to our devotion to them. The fortunes of the gods rise and fall just like a family's might do, over time. When the gods are weak (when men's devotions lag or for other reasons) then floods and other things bad for man can easily happen.

1. Japanese: Hara; Sanskrit: Chitta. Located in the solar plexus, the source of motivation, spiritual power, the center of the spiritual body. Chiktah is the Sherpa word. The Lama is using Nepali (Mun).

Dorjee's father's generation spent their lives in fields, in crossing high and lonely passes while trading, or in search of teachings from Buddhist "spiritual friends" scattered across Tibet. Some even sought to conquer their unruly conflicting wills. But none of them ever thought of "conquering" ice and rock because of its height.

One day I was talking to an old Sherpa man who suddenly said, "You say you have come here to ask me these questions and then you go to your own country and make money. You say that you have to go here and do this and go there and do that. But where do they come from, these wills? From Chiktah."

His name is Lakpah. His hair is silver and wound about his head in braids. Twenty fine silver hairs jut from his pointy chin. His eyes are dark brown and suddenly, for the first time that day, alive.

"From Chiktah comes discrimination, our different wills. From Chiktah comes the will to say this food is good or bad, these words intelligent or not. From the Chiktah," he says, patting his belly, "from here, comes this discrimination.

"You ask if Chiktah is bad or good and I say that the good comes from it and the bad comes from it. All that you can will comes from here.

"Good things and good thoughts, bad things and bad thoughts, seeing red, seeing blue, and saying which is which. Where else could these come from but Chiktah?

"But you have not seen your Chiktah so you are like a dog howling in the night at shadows, searching for food or women and then fighting over them.

"We are all just like dogs until we see this place where all wills come from, this thing that is good and bad, that is never born and never dies. When you see this, then you know your wills, any will, is just the dust blown in the winds of your eyes and mouth and hands and mind.

"You have the will to sleep. Another has the will to hit you. Which one is best? Both are just wills and you are never free from being driven by them until you see the place where

"When the gods are strong, then things go well because the Lamas of long ago arranged the small and the large, the weak and the powerful gods, in such a way that the water would flow well, so that all the energies would flow well for the needs of man. The Lamas of long ago arranged the physical and spiritual worlds in harmony with the needs of man.

"We are unable to say whether the gods are angry or not because of the climbers. But if we go down a trail tearing it up and making a lot of noise, then those who live there will be angry, won't they?

"Just so with the Himal. Then if men cross the things they have invested with their Mun energy, they can hurt us. Like Hillary's son lost his arm and Hillary's wife died in the plane crash. When we cross these Mun-created powers then they can hurt us. Perhaps not right at first, maybe not even the second or third time we climb a mountain, but in the end, in their own way, they make us pay: we have wounded them in a way and the foul smells of the gods' wounds have an influence on us."

The Thyangboche Lama has to deal with thousands of tourists and mountaineers every year. He has learned diplomacy. "No one should be able to be angry with that peaceful description now should they?" he asks.

Diplomat that he is, even he cannot avoid the truth when asked — given all that he has said — why the Sherpa still climb.

"When the Sherpa see a friend die on the mountain they know the work is no good, but they need the money. To the Sahibs they must say they like the work, of course. The better they can say this, in English, the better money they will get. How else could it be? No Sherpa would climb if not offered money."

Other Sherpa Lamas who are less in the spotlight than the Abbot of Thyangboche are more blunt.

"The Sahibs bring all of their money and then arrive on the top of the mountain or do not. But what of those Sherpa killed for the pursuit of the Sahibs' pleasure? The Sahibs are not concerned with the danger they bring to the Sherpas' lives. Their greed for achievement, for fame, does not allow them to see this. What of the Sherpa who lose all their fingers, and the Sahibs too; what good is all their wasted money then? Who can buy fingers? Who can pay for their pain?

"All of this pain and waste on useless and self-destructive work . . . Stupid. That's what climbing mountains is; no profit for anyone. The main result is simply offense to the gods, to the mountain.

"When the gods are offended by the filthy smells that human bodies deposit in the once clean snow then they will leave and seek out a peaceful and nice smelling home.

"When the gods leave then there are floods and avalanche, washing away the fields of man, his homes, even killing people and other animals.

"The land cannot work without gods, the water does not flow in its proper path or season. The water and land destroy one another without the gods and doing so destroy the basis for human life.

"A land without its god is soon destroyed and washed away bringing misery to its inhabitants; animal, human, and plants alike.

"This is what the mountaineers bring. But they do not live here and so do not care; their greed blinds them and for their greed they will go to hell.

"The young Sherpa do not speak like this because they no longer understand. They go to the Hillary schools now. But when the energies in the earth and water are angry, they destroy everyone's basis for life and work, whether we know of them or not.

"When they are angry the hail comes. When they are angry the dragons fly before the storm and we see them clashing their claws, as lightning. They throw the metal down and destroy homes, trees and temples. When the gods are angry all is destroyed." — T.L.

they all come from, good or bad. Chiktah makes all people do what they do."

In 1981, looking back at this fading view of the world, one is tempted to distill something to apply to all those persons who have had the will to climb or ski or stare up at Mount Everest. From an old Sherpa man's point of view, one can easily say that they have made all of these infinitely varied types of attacks on Everest and changed a culture in the process not "because it is there," but because it is here in our hearts, embedded by the same unknown forces that embedded the image of that soaring windswept block of rock and ice in the "chiktah" of the Sherpa as the Goddess Chomolungma.

Different societies create different people with different orderings of their perceptions. Until recently we in the West have been willing to dismiss these alternative perceptions as local superstition to be dealt with on the way to the top of the mountain.

The slow homogenization of small cultures that this attitude engenders creates things and destroys others; man as a whole gains and loses by the process.

It is worth recalling, though, that in any natural system it is diversity that provides the whole system with overall stability. What is poison and produced as waste by one plant is the required food of another; where one species is strong, another is weak. Thus the web of life is sustained through a chain of interdependence. As this is true for plants and other animals we might also suppose it to be true concerning the long-term stability of the human population as well.

Who can say that climbing mountains for money is a bad thing? That climbing mountains because of a wilderness aesthetic is a good thing? Or that not wanting to climb mountains at all might not be common sense?

No one. These are only culturally inspired values. From a Sherpa viewpoint, recognition of the basic sameness of all human motivations is the beginning.

Someone found a mountain. Others came to climb it. Thousands came to see it. Those who have always lived there could never understand why. They wonder if we do.

more →

THESE TWO WINDOWS HAUNT ME. I searched for photos to illustrate a point in my head, something that sticks with me from my time with the Sherpa, and the images that have come are these two windows. From one window a Sherpa woman harvests the barley and from the other only Mount Ama Dablam.

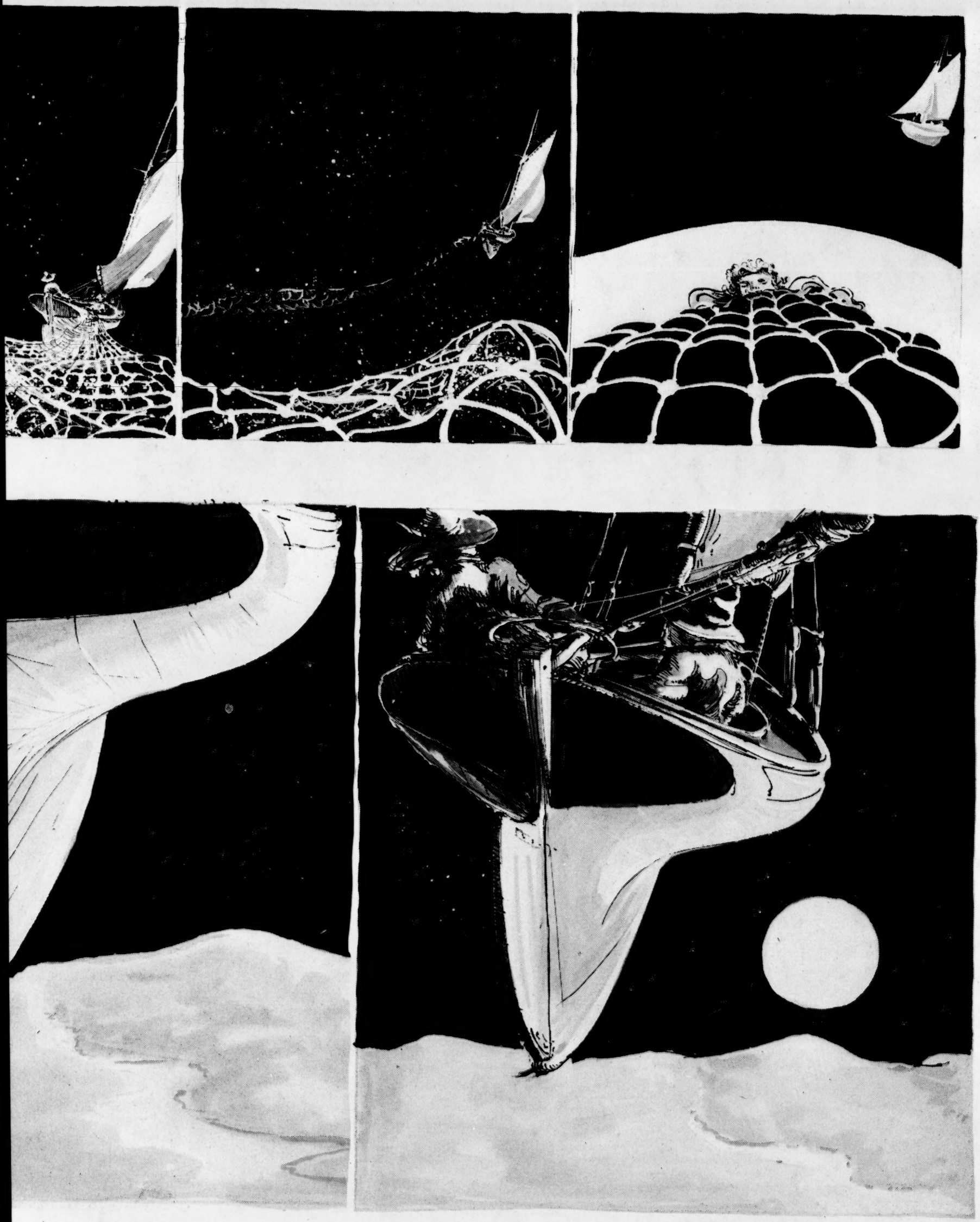
First you should know that until the recent introduction of glass, all Sherpa windows had the same shape, the gentle arches. Tiny little forms cut into inch-thick planks letting in little light to the house when open and letting in nothing at all when firmly shuttered and cross-bolted from inside. No winter sleet, no marauding man or animal. Secure. Outside was outside and Inside was inside.

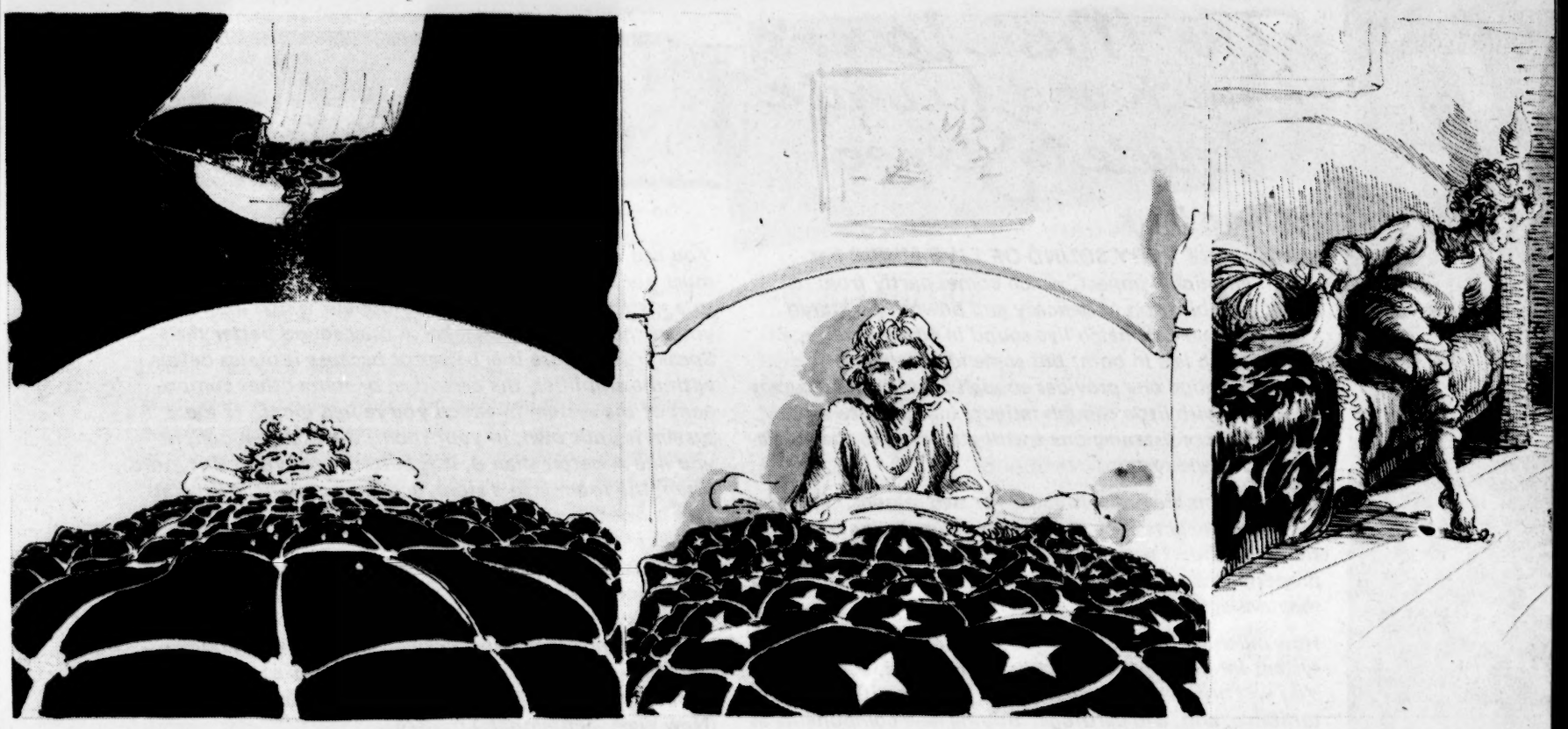
The other window, which Sherpa call "Modern Windows," lets in so much light and allows such a nice view! Every one of us who ever went into a Sherpa house (stumbling up the dark stairs from the groundfloor barn and into the human quarters still blind from the bright sun outside) could hardly fail to mention the wonderful view outside nor fail to mention how dark and smoky it seems inside. It's natural. Because we like to take the outside inside, our houses look out. Sherpa houses look in; they are the Warmhearth secure in the storm. Nature is not something to admire like city folks cooing over the cows. For the Sherpa the world is not something to look at but to live in.

Who would bring it in? We would. So all the modern houses have these beautiful glass windows letting in the sunlight and the view. The Sherpa have learned. They go to great expense to tear out the solid old shapes from the stone walls and set in the frames for the glass. I have even seen houses which suffered so from the change of windows that they threatened to collapse and have had to be shored up from the outside. The national park, which has been set up in part of the Sherpa homeland, has gone so far recently as to tell Sherpa they should put back in the old windows and cover the new aluminum roofs with stones, to return the valley to its previous looks. Too late. They like it now.

From one window the fields of man, the fecundity of the valley, where the Sherpa live. From the other only the dead snows of land thrust so high that for most men to go there we have to carry extra air on our backs to do so. Personally I am unable to name the drive that pulls me above the treeline, like a moth to the light — too high and it'll kill you. Sherpas are not pulled in this way. Mountains are a pain in the ass, something to be gotten around or, if really required or paid enough, over.

For me these two windows are the two screens, two competing viewpoints, and it is the battle between them in all of Asia and Africa that is reshaping the land and the people who live with it. To me, for the majority of the planet this is the battle of our times. From making your house and food to making money. From agrarian self-sufficiency to the cash economy and interdependence with the rest of the planet. Good? Bad? ■

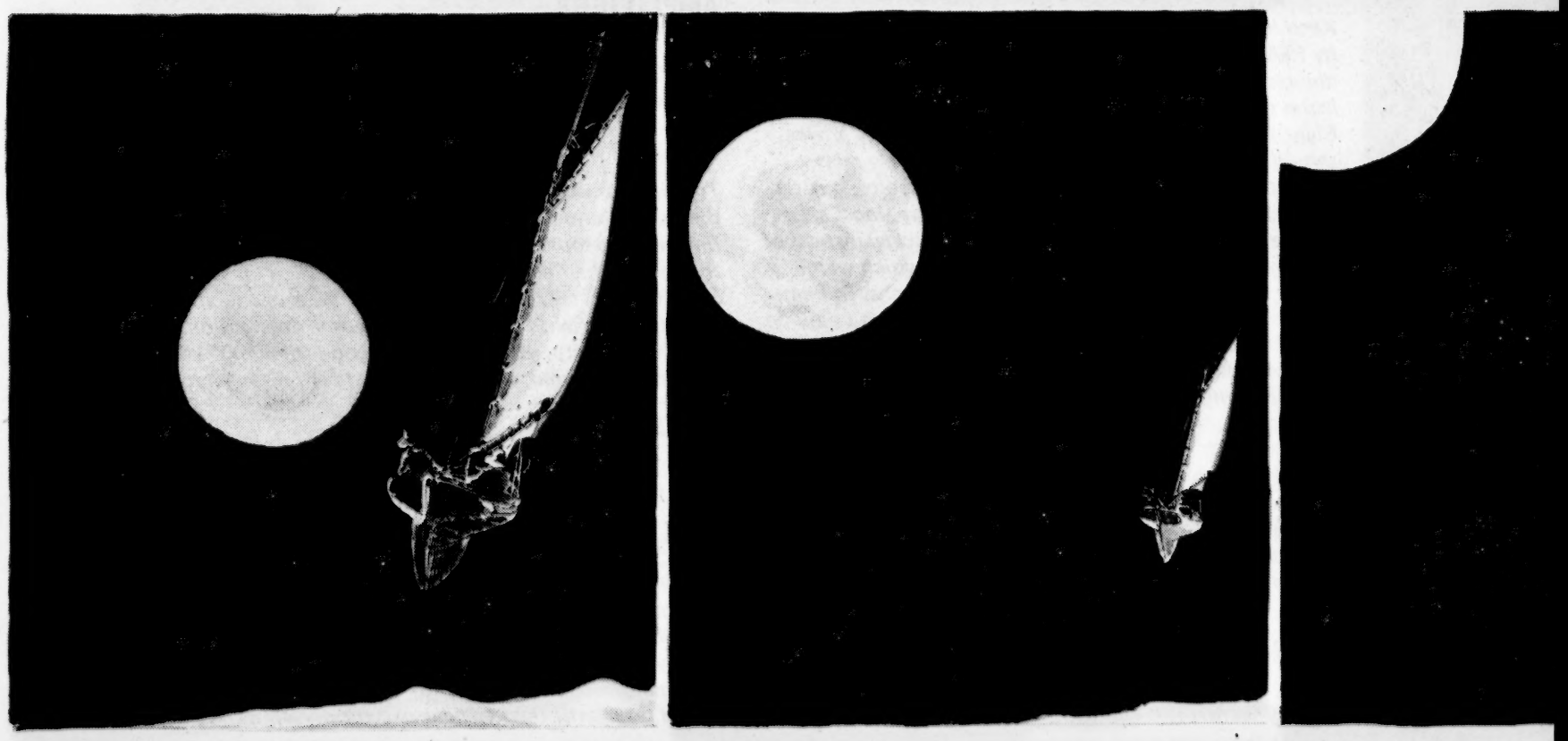


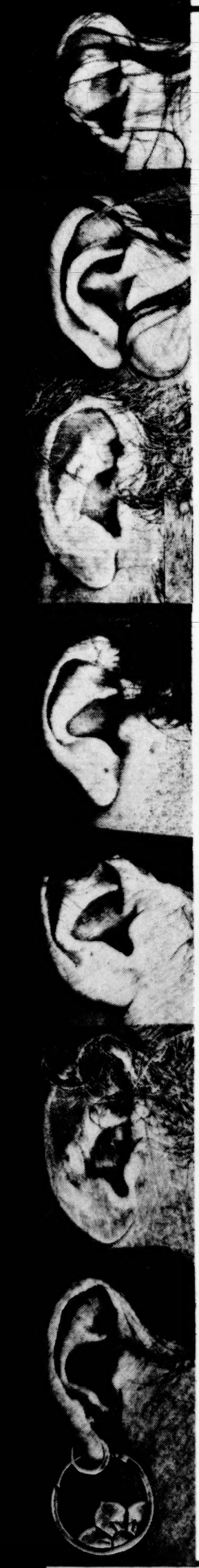


BOAT FANTASY

by Buck Smith

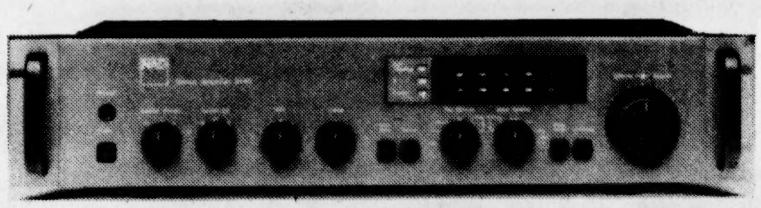
Besides drawing inner boat films, of which this is only two tiny portions of one, Buck Smith is building a 28-foot scow sloop for commercial hauling on Penobscot Bay, Maine. We're grateful to Peter Spectre of **Woodenboat** *for sending Buck our way.*
–SB





The Music Lover's Quick and Accurate Guide to Stereo

by James Boyk



NAD 3140 Amplifier — $348

THE VERY SOUND OF LIVE MUSIC has emotional impact, which comes partly from its combination of delicacy and power. No stereo system can match live sound in either quality, much less in both; but some are better than others. A good one provides enough beauty and accuracy of sound, with little enough fatigue, that after two or three hours of listening one is still attending to the music and not to the system.

Most systems are not this good, for two reasons. First, most components are not capable of convincing reproduction. Second, if good components are not matched properly, the system will be mediocre. You can do better than average, though, even with modest outlay.

How much will you pay? For convenience, think about a system for playing records only, no FM, AM, or tape. You will need one pair of speakers, one amplifier, and a turntable, arm, and cartridge. Buying new components at list price, the cheapest musically reasonable system will cost about $1000 (but see below for used equipment recommendations). The "point of diminishing returns" for typical tastes and a typical listening room is about $2500 to $3000. Above this point, spending more does not pay off so well as it does at the lower price levels. The upper limit of useful expenditure is not reached, however, until about the $15,000 mark. Of course, nothing pays off if the equipment is not well chosen.

No matter how you choose, keep certain things in mind. First, you can ignore the specifications, or specs — those numbers labeled with such terms as Rated Power, Total Harmonic Distortion (THD), and so on. They are useless and often meaningless. It would be nice if this were not the case, and one hope we have in my course at Caltech is to find some meaningful numbers. But right now there really aren't any, certainly not among the ones on the manufacturers' spec sheets. The good side of this is that you can forget about them.

Keep in mind also that audio salespeople know very little. In 1978, I gave 85 salespeople a technical quiz with questions probing the salespeople's understanding of issues important to component choice and matching. Eight points was a perfect score. Anyone giving advice should get at least 6½, in my judgment. A few salespeople did receive perfect or near-perfect scores, but the average was an abysmal 3.8 out of 8. Worse, most salespeople showed what I call negative knowledge; instead of simply not knowing, they "knew" things which were wrong. (As a consultant, I am in a certain sense in competition with salespeople as a giver of advice; so I may be biased. However, when I gave that quiz and published the results in **New West** *magazine, I was not yet consulting professionally; so I had no conflict of interest.)*

James Boyk, a concert pianist who used to write about matters audio for New West, and whose consulting firm Sound Decision (2135 Holmby Avenue, Los Angeles, CA 90025) does nothing but match audio gear to his clients' individual needs and tastes, sent us this survey of the best sound equipment and how to find it. He wrote, "It contains everything I would say to a good friend on this subject." His audio class at the California Institute of Technology is jointly offered by the divisions of Engineering and Humanities. —Art Kleiner

You can ignore the specs and the sales hype; what you must not ignore is the reality that you are always listening to a system, not just to the component which interests you at the moment. Speaker A may sound better than Speaker B because it is better or because it mates better with the amplifier, the cartridge, or some other component of the system in which you're hearing it. If the system is your own, in your room, then fair enough, if you like A better than B, it is better — for you. But more often, the room is in a store, and the equipment is whatever is hooked up at the moment. You may know what you like; the trick is knowing what to attribute it to. This subject is enormously complicated. In my consulting work, assuring component compatibility for a client's system is more time-consuming than the initial choosing of the components. For more on this, see **Hi-Fi Choice** *magazine (below) and my article "The Perfectly Complete, Completely Perfect, Thinking Person's Guide to Stereo" (***New West***, September 11, 1978).*

The threshold expenditure above which my consulting becomes worthwhile is about $1500 for a phono-only system. Most people spend less than this, so I can freely recommend lower-priced components for the great majority of music lovers.

TURNTABLES, ARMS AND CARTRIDGES

Dual 1257 with ULM cartridge — $199
B&O Beogram 1600; includes cartridge — $325
B&O Beogram 1700; includes cartridge — $395
Used Pioneer PL 512 turntable and arm
Used Sansui SR 222 II turntable and arm
ADC QLM 34 III cartridge — $18

Spend more rather than less on these. Air pollution will kill an important rubber component in the stylus assembly, necessitating stylus replacement perhaps once a year with virtually any cartridge, even if it is never used.

AMPLIFIERS

NAD 3020 — $218 NAD 3140 — $348
Used Sansui AU919
Used tube equipment made by Dynaco, McIntosh, Fisher

TUNERS

The right tuner is very dependent on your location and the density and strength of the stations on your FM dial. In general, people spend enough on their tuners and not enough on their antennas. If you're hooked up to the cable for FM, stay away from digital tuners generally, but do get a tuner with a "75 ohm" antenna connection. If you live in a city, get a tuner with good shielding: with no antenna connected, the tuner should pick up no stations.

RECEIVERS

NAD 7020 — $348 Tandberg TR 3030 — $399
Used Fisher tube receivers

CASSETTE DECKS

Dolby Labs recently announced a new noise-reduction system which they claim is much superior to their own established "B" system. The new one is called Dolby "C," and by Winter or Spring 1982 substantial numbers of competing machines all with Dolby "C" will be available. I would wait until then to hear one for myself before

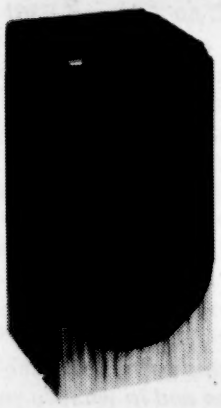
buying. It seems likely that virtually all Dolby "C" machines will also be able to play back Dolby "B" tapes, so you may want to take advantage of price cuts as "B"-only units are discontinued.

Really good cassette machines start at about $500 or $600, which is beyond our scope here. Do consider, though, whether you need a cassette deck at all. For taping from the radio, fine. For taping a selection of favorites from different records, or taping individual records for playback in your car, fine. (I'm not speaking of possible legal aspects, just of the technical appropriateness.) For casual live taping, fine, although you should plan to spend a minimum of $200 for a pair of microphones, a shock mount, and a stand.

Many people have a notion of taping records and then playing the tape to save the disc. This makes no sense, as the cassette deck costs a substantial amount, the tape itself costs something, and if you value your own time at all, it's cheaper to buy another copy of the record. Put the money you would have spent on the cassette deck into a better turntable, arm, and cartridge.

Nor does it make sense to think of cassette for truly professional-quality live recording. The tape is half the width of open-reel tape, and it moves at one-eighth the speed. This means that the ultimate performance of the cassette cannot equal open-reel, given the same tape. It means, too, that the cleanliness and proper electrical and mechanical adjustment of a cassette deck are super-critical. Most people who buy cassette decks think so much of the convenience that they ignore the other side of the coin, the need for scrupulous care in the frequent head-cleanings, the less-frequent head demagnetizations, and the annual (say) complete service by a pro.

The first time to take your deck in is when it is brand new. It must be "set up" properly for the tapes you will record on. Unfortunately, many machines are improperly adjusted at the factory, so you must have this done immediately. If you do not do this, or if you will not take care of the machine as outlined above, or if you don't really need the convenience of a cassette deck, save your money.



SPEAKERS

EPI 100V – $240/pair
Polk 5A – $300/pair
Polk 7B – $400/pair
B&W DM22 – $450/pair
Spendor SA1 – $600/pair
Rogers LS3/5A – $625/pair

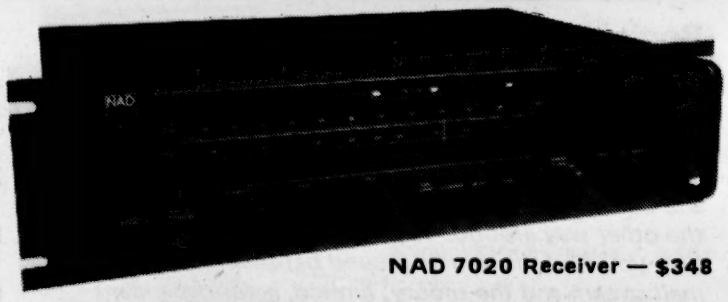
B & W DM 22 speakers — $450/pair

Listen to the Rogers. They are a reference for naturalness of sound and accuracy of spatial placement of the music. Their tiny size limits the amount of extreme deep bass they can produce; and they will play only loud, not super-loud. (Forget add-on sub-woofers with them or any other speaker.)

MICROPHONES, ETC.

Beyer M260 – $204 Sony ECM 989 – $435
Used Advent microphone preamp.

The Sony is a "single-point" microphone: two in one for stereo. You'll need two of the Beyers; try mounting them or any other "uni-directional" microphones crossed at 120 degrees and co-incident, that is one microphone head immediately above the other. The Advent microphone preamp takes the plugs from your mikes and itself plugs into the "line in" on your tape deck. It is probably much better than the deck's built-in preamps. Power it with a couple of nine-volt transistor batteries.



NAD 7020 Receiver — $348

MISCELLANEOUS

Discwasher – $16
Discwasher Stylus Brush – $8
Gold-Ens Cables – $10
Monster Cable speaker wire – $.80/foot
DB Systems DBP-6 Cartridge Loading Kit – $25
Cart Align – $30 or DB Systems Protractor – $25

Allow about $125 per system for these. You definitely need the Discwasher record cleaner and the stylus brush. You need good interconnect cables and speaker wires like Gold-Ens and Monster Cable or their equivalents. The cartridge loading is difficult to explain but simple to use. Check its instructions in the store to see if you need it. Get it if you do. The Cart-Align and DB Protractor are for setting the correct geometry of the cartridge in the arm. Get one of them unless you buy one of the B&O turntables, in which the manufacturer has done it for you.

AUDIO EQUIPMENT PERIODICAL REVIEWS

Published reviews can help provided that you read the right ones. Remember that you may disagree when you listen to the component yourself. This can happen because your tastes differ from the reviewer's or, more interestingly, because the other components in the listening system change the sound, because the manufacturer has changed the design without changing the model designation, or just because of sample-to-sample variation.

Most audio writing in the U.S.A. is hack work, unfortunately. I recommend the following:

Hi-Fi News and Record Review, John Crabbe, Editor. $40/year (12 issues) from Subscriptions Department, Link House Publications, Robert Rogers House, New Orchard, Poole, Dorset BH15 1LU, England. *Half-and-half audio and music. If I could read only one magazine to keep up with equipment and current audio thinking generally, this would be it.*

Hi-Fi Choice, no subscriptions; send £2.60 (about $5), for each issue to Sportscene Publishers, 14 Rathbone Place, London W1P 1DE, England. (Send International Reply Coupons.) *Each quarterly issue covers one sort of component, loudspeakers, cassette decks, etc. Virtually every model in England is surveyed – lots of overlap with the U.S.A.– with innovative lab measurements and "double-blind" listening tests. The consumer and technical introductions in each issue are worth the price by themselves. Inscrutably, the publishers positively refuse to sell* **Hi-Fi Choice** *by subscription.*

Gramophone, Anthony Pollard, Editor. $32.50/year (12 issues) from General Gramophone Publications, 177-179 Kenton Road, Harrow, Middlesex, HA3 0HA, England. *Mostly record reviews but an excellent audio section.*

The Stereophile, J. Gordon Holt, Editor. $26/year (10 issues) from The Stereophile, P.O. Box 1948, Santa Fe, NM 87501. *The original "underground" audio periodical. Reviews, lists of recommended components, system recommendations from a staff that knows what live music sounds like.*

It's only fair to mention that the importer of the Rogers speakers has loaned a pair of them to my Caltech lab, and that I receive **Hi-Fi Choice** *free as a journalistic courtesy.* ■

Book Marketing

New Pages

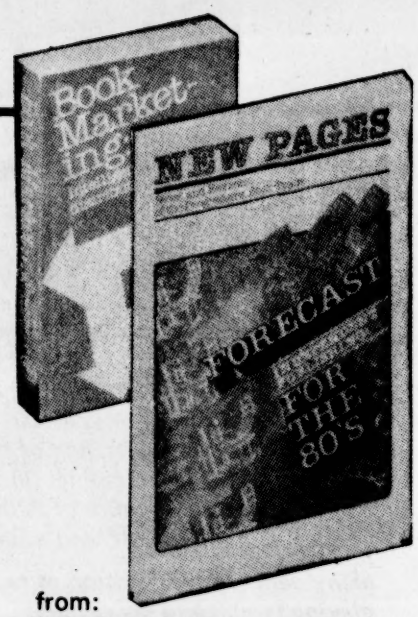
The conventional wisdom is that people don't want to read anymore; therefore the book business is desperate and corrupt. Here are two new publications that show it's the other way around. If you're a small publisher they'll help you find the middle ground between the crass mainstream and the snooty, limited, grant-dependent literary press.

Book Marketing *shows why the entire book sales system innately favors books with short lives — mass market paperback product — instead of books that might with time become classics. A depressing situation for anyone who cares about books, but this book's labor-of-love techniques for finding an audience, developing promotion (not hype), and distributing locally are as close as we're likely to get to an antidote. After years of studying book distribution and the book business, the author is just angry enough to write excellently about them.*

New Pages, *a quarterly tabloid, covers the ongoing story of small press publishing and reviews new books and magazines with a fond but critical eye. The issue I saw had no clinkers. It included an article on how books go out of print that still resonates in my mind a month after reading it.* —*Art Kleiner*

Book Marketing
(A Guide to Intelligent Distribution)
Michael Scott Cain
1981; 232 pp.
$7.20 postpaid from:
Dustbooks
P.O. Box 100
Paradise, CA 95969
or Whole Earth Household Store

New Pages
(News and Reviews of the Progressive Book Trade)
Grant Burns and Casey Hill, Editors
$10 /year (4 issues)
from:
New Pages Press
4426 South Belsay Road
Grand Blanc, MI 48439



●

Booksellers are a lot like actors or poets — perfectly willing to work very hard at something they don't expect a fair financial return from. The problem, then, lies elsewhere. One bad mistake and he's out of business. Few personal bookstore owners have the resources to bounce back from a financial error.

What happens when a bookstore closes? The community quits reading. —**Book Marketing**

●

Authors could consider taking their books to the independent press first. There are many myths about why the big houses are better, get their books out to more readers, pay authors more money and so on. In many cases the truth is just the opposite. If your book does well through the independent press, you will be in a much better position to bargain with a big publisher for future printings — if you want to. Further, you may be able to keep the small press edition in print simultaneously, leaving you another option if your newer edition is allowed to go O/P.
—**New Pages**

Personal Computer World

Even if the British programming culture were not so innovative (they've been fumbling with Videotext for years; we're only about to start), and even if the Brits didn't keep track of foreign computer industries that can't seem to squeeze past the U.S. Silicon Curtain, this would still be one of the best general-interest computer magazines around. Their article on word processing, for instance, was the only one I've seen that made the different options clear. They also list all the microcomputers they know of, and the manufacturers' addresses in every issue. So many American computer magazines seem to exist just because they know people will spend money on them; this one takes its subject seriously, and still has space to be lively and irreverent. —*Art Kleiner*

Personal Computer World
David Tebbutt, Editor
£17 /year (about $42)
from:
Personal Computer World
Subscriptions Department
14 Rathbone Place
London W1P 1DE
England

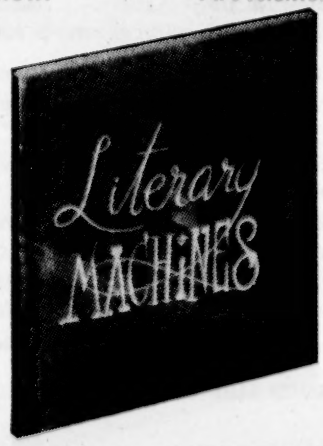
This guy is for real, the Apple is for real, the guitar strings are for real, too and they all work together. He is Bill Fickar, lead 'guitatist' of the Broken Rubber Band and he used the Apple to play synthesised guitar music. As long as he can keep his elbow off the RESET button, he remains a superb advert for ALF Products Range of computer music products for the Apple — floppy disks that not only look like music disks but sound like them too.

Literary Machines

Like Ted Nelson's other books (**NWEC** *pp. 528 and 536*) *you tend to read this one three times: once in utter confusion, once in vague appreciation, and once in ("Oh yeah!") manic glee that spurs you on to realize your own computer dream. Nelson's dream, detailed lovingly in this wigged-out prospectus, is a multi-layered computer network called "Xanadu" which would carry text, images and music. Its content would apparently be all of human civilization. Its individual pieces would electronically link to each other, springboard onto other topics, comment and play jokes on each other, glisten in each others' illumination and generally act like a living encyclopedia. You and I would write the stuff, compensated with computer-calculated royalties based on how often and in what forms our writing would be read. The most appealingly bizarre feature is the franchising of fast-food-ish arcades called "Silverstrands" with public-access Xanadu terminals.*

Until the network is available (Nelson says this year, but he's said so before), this book will suffice. It plots a future of computer networking as closely adapted to people as the telephone is now. —*Art Kleiner*

Literary Machines
Ted Nelson
1981; 119 pp.
$16 postpaid from:
The Distributors
702 South Michigan
Suite 836
South Bend, IN 46618
or Whole Earth Household Store



Letters to a Friend

Wow.

Ten minutes after this book came in the mail, it was surrounded by a circle of people actually saying "Oooh!" and "Ahhh!" That was followed by discussions of who was going to xerox what page and how were we going to order copies of our own and how had the people who'd put it together done so many things so well.

The answer to the last question is love and hard work. The love is for the work of Paul Reps, a Zen wise person (author of **Zen Flesh Zen Bones***) whom I'd never heard of before seeing this book. (He is well known in some circles in this country and famous in Japan.) He is a man who can do truth in three words and beauty in two lines and he did so often in his 30 year correspondence with his friend Bill which is excerpted in this book. Now they have made one that is beautifully everything — edited, designed, typeset, printed, bound. The printing of the images on the acid free book paper and the tipped-in Japanese rice paper is so good that it's easy to think that Reps just finished brushing them on. And the images and words themselves are the kind that you show a friend now and keep thinking of tomorrow and the next day and next year.*

Seventy-five dollars is a lot to pay for a book — myself, I usually buy paperbacks. I think the price of this book is cheap for what it is, and I'm going to get at least two for gifts. If you can't buy it, keep looking for it in book-stores so you can take some of it with you in your head.

—Anne Herbert

Letters to a Friend
Paul Reps
1981; 184 pp.
$75 postpaid from:
Stillgate Publishers
P.O. Box 67
Alstead, NH 03602
or Whole Earth
Household Store

drinking
a bowl of
green tea
I stop the war

•

Dear Bill,

Why should fine folk ask so urgently for the unknown artless ugly reps stuff? You may answer this one.

P.S. The word *fish* is more alive than the word *nez*, spelled backwards, always will be. Instead of trying for space let us try for the space *in* fish. *Fish no like dish.* One Japanese who knew no English said this was the only poem in the exhibit he could understand.

Moral: Reps is at war with sentencing ourselves. We need imaging, sounding; the Chinese know this instinctively so well, thru their ideograms. This may bring art and US alive.

Second hand living and facing will no longer do.

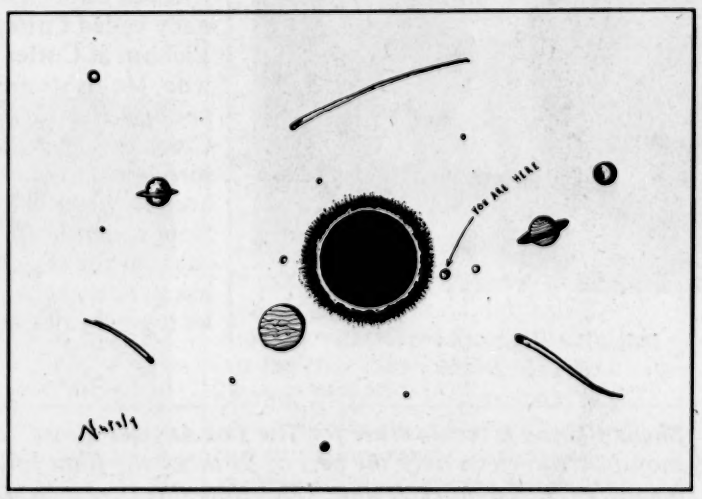
The Alternative Press

Getting an envelope full of various interesting stuff in the mail is one of my favorite surprises. Here are some people who do it by subscription — $15 for three envelopes with about 12 goodies each. Envelope No. 9, for example, includes seven loverly letterpressed poems, some interesting Xerox art and three postcards, one an actual watercolor and another a handwritten poem with a crayon drawing of the Sun. Envelope No. 10 includes a Recreation Wrecks the Nation bumpersticker by Edward Dorn and a bookmark that says "Crossing into Nebraska the mileage meter turned to 60,000.0, the radiator was miraculously cured and the U. of Nebraska scored another touchdown. I don't remember coming out of Nebraska at all" (Cinda Kornblum). I like it.

—Anne Herbert

The Alternative Press
Ann Mikolowski and
Ken Mikolowski, Editors
Published occasionally

$15 /3 issues from:
The Alternative Press
3090 Copeland Road
Grindstone City, MI 48467



JAZZ at the BAR

and amid the noise
and exotica

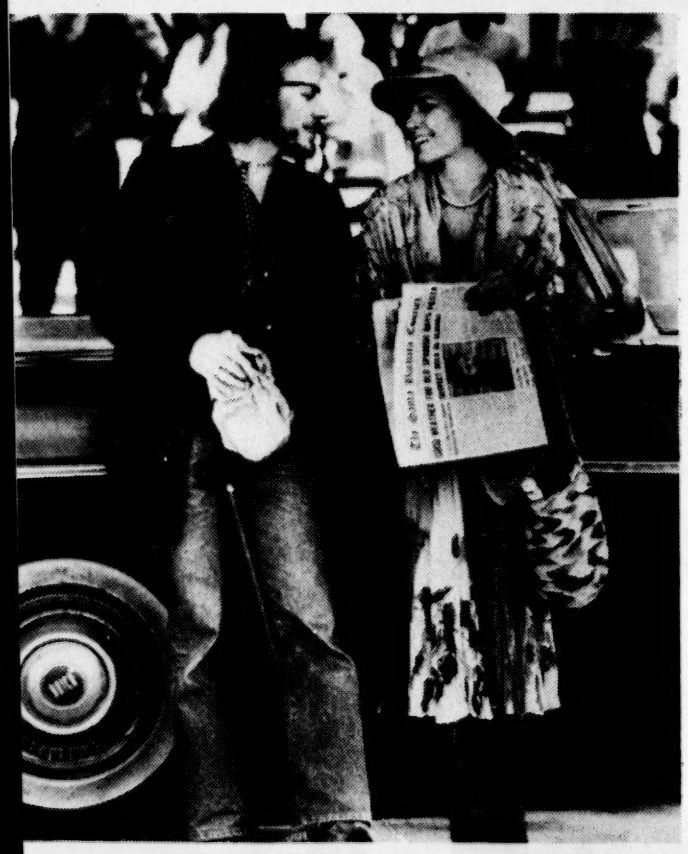
my heart twitches
the old whore

when the one
likely man
walks past

Mary Ann Cameron

Chariots of Fire

GOOD MOVIES



Cutter's Way

CUTTER'S WAY is so good – so very, very good – that its treatment by United Artists (a massive vote of no confidence) is all the more appalling. In essence it is almost a Santa Barbara-based **Chinatown**, with the corruption on a slightly smaller but no less terrifying level. A sort of mystery story threads through the film, but it has Vietnam as its underplot in much the same way that **Who'll Stop the Rain** had.

John Heard's performance as Alex Cutter, a Vietnam vet who has lost an arm, leg and eye, is fiercely memorable, and so is the working out of his relationship with Jeff Bridges as Richard Bone. (The film was originally called **Cutter and Bone**.) Lisa Eichorn as Cutter's hard-drinking wife, Mo, is stunning. Perhaps it's because director Ivan Passer is Czech that his view of America is so particularly keen, or it may have been Newton Thornberg's book, from which Jeffrey Alan Fishkin adapted the screenplay. The film has a spotty release pattern – don't let it get away from you.

* * *

CHARIOTS OF FIRE is a magnificent story of struggle and achievement, seen on a very intimate level. It is both solidly old-fashioned and breath-stoppingly daring. Its title, taken from the British hymn "Jerusalem," may do it an injustice – it is not science fantasy but the almost fantastic true account of the 1924 British Olympic track team which included Eric Liddell (The Flying Scot) and Harold Abrahams. With the Paris Olympics as a backdrop, the film contrasts the lives of the two men. Abrahams, battling entrenched anti-Semitism at Caius College, Cambridge, where his determination to win at any cost was deplored; and Liddell from a missionary background, trying to see if he could decently combine a commitment to God with the speed of a man possessed.

No small part of this brilliant film is its extraordinary musical score by Vangelis and the haunting camera work of David Watkin. Producer David Puttnam (**The Duellists, Midnight Express**) used as a first-time feature director Hugh Hudson and two unknowns in his starring roles, and every one of his bets paid off. Both Lindsay Anderson and Sir John Gielgud play Cambridge masters superlatively.

* * *

It seems like Gielgud month, actually. If Gielgud does not win an Academy Award for his performance as the elegant butler, Hobson, in **ARTHUR**, then justice will not have been served. Steve Gordon has written and directed a luxuriously witty film which is, in its way, a love story between the impossibly rich Arthur (Dudley Moore) and Hobson, who fills the role of father in Arthur's life. That's mainly because Arthur's real father is such a thoroughgoing snake.

The film feels like a throwback to one of those '30s fairy tales about the very, *very* rich, but it manages to be diabolically funny. Liza Minnelli is nicely subdued as the lady who catches Arthur's eye, but it is the performances of Gielgud and Moore which have the timing of aerialists.

* * *

Set in the steaming Florida summertime, **BODY HEAT**, written and directed by **Raiders of the Lost Ark** screenwriter Lawrence Kasdan, is what **Postman** should have been: hypnotically, powerfully sexy. The story is a little like **Double Indemnity** and it looks like hard-edged film noir, only it's in color and set right now.

Newcomer Kathleen Turner catches lawyer William Hurt's eye one night

Sheila Benson is movie critic for ***The Los Angeles Times****. Each three months she reviews only the best of forthcoming films for* ***CQ****, so the quantity is different each time. This time there are a lot of really excellent films. "I don't know what's going on."* *–SB*

Stevie

as, dressed all in white, she sways out of an outdoor concert. Before long the two are ill-meeting by moonlight and are stickily glued to each other in bed in the sauna-bath Florida heat. And from there it is only a short step to the execution of a murder. Things are complicated by Hurt's profession, and that his two best buddies are the D.A.'s man and a police lieutenant. Superb performances, an intelligent, resourceful script, and dialogue that respects the audience's brains make this as tight and anxiety-ridden a night at the movies as you'd care to have and still be able to sleep afterwards.

* * *

STEVIE is closet art; there is no sweep to its cinema at all. But its appeal to your ear, its celebration of language, and the detail and intensity of Glenda Jackson and Mona Washbourne's performances make it unforgettable.

Stevie Smith was a minor English poet who lived until the 1970s, remaining resolutely suburban her life long. **Stevie** is adapted from Hugh Whitmore's play and arranged as a virtual tour-de-force for Jackson, directed by Robert Enders. Living in Palmer's Green with her "lion aunt," cherishing the day-to-dayness of routine life, Smith's life nevertheless encompassed gallantry, wit, vigor and – not to be corny about this – a kind of grandeur.

"I was much too far out all my life," one of her better-known poems ends, "And not waving but drowning."

* * *

Perfection in films is so rare that being faced with it is almost unsettling. Nikita Mikhalkov, who made **Slave of Love**, has now coadapted and directed Ivan Goncharov's classic, **OBLOMOV**. Its subject is paralyzing indolence and if that doesn't sound very interesting, it is also about all the permutations of love.

The novel is so well-known in Russia that its hero's name has been turned into a synonym for languor: oblomovism. At 35, the rotund Oblomov looks almost 50 as he dozes on his sofa in the blue, white, and gold elegance of St. Petersburg. He is pushed back into life with dogged determination by his handsome boyhood friend, Stoltz. Stoltz insists upon this regeneration, but on his own Oblomov finds love in the person of the exquisite Olga (**Slave of Love**'s actress-heroine Elena Solovei). Oleg Tabakov captures precisely Oblomov's innocent sweetness tinged with melancholy. While we yearn for his final step toward the world we feel inexorably the almost tidal pull of indolence upon this captivating man. One of the film's many values is its delineation of much that is constant in the Russian character.

* * *

Audacity is one of the qualities which separates the artist from the hack. Director Karel Reisz and screenwriter Harold Pinter, in making a film from John Fowles' **THE FRENCH LIEUTENANT'S WOMAN**,

The French Lieutenant's Woman

have dared to alter its form, to frame its period scenes in the context of a film in progress, then weave the fabric of the story with the lives of its actors.

It is a daring notion but it works. At first it is jarring: how do we throw ourselves into this romantic Victorian drama when we've just been shown its unreal underpinnings so shamelessly? But before a quarter of the film has gone by we're caught. And since the screenwriter is Pinter, we discover wheels within wheels, every action becoming a comment on more than one level, like a three-dimensional Chinese-checkers game. From her first tragic glance from under that green-grey hood, her hair flaming red, Meryl Streep illuminates to the core Sarah Woodruff's disturbed heroine. Jeremy Irons is the smitten Charles. Every element – art direction, music, costuming, superb editing – makes Reisz's production a profoundly satisfying work of love and intelligence. ■

Oblomov

This story and the cartoons on p. 59 are from the forthcoming **Weirdo** #3, edited by R. Crumb ($11/year for 4 issues, Last Ghasp Eco Funnies, Box 212, Berkeley, CA 94704).

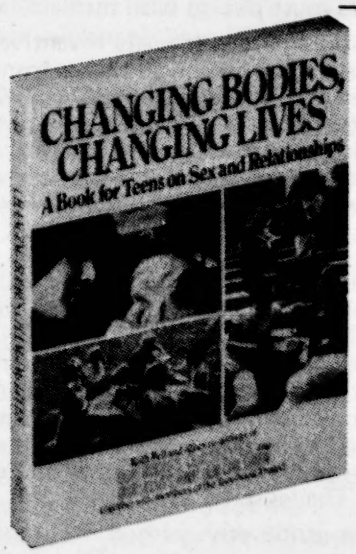
LEARNING

Changing Bodies, Changing Lives

Teenage sex and its confusions used to be of crucial importance just to teenagers. With the new flood tide of teenage pregnancies, sexually transmitted diseases, etc., the situation has become public and grave. Reagan, the Moral Majority, and the like don't have the solution. This book does — knowledge direct and interesting to the teenagers themselves, thus short-circuiting the whole population of adults who are uncomfortable, inarticulate, and often shockingly ignorant around this subject.

From the authors of **Our Bodies, Ourselves** *(NWEC p. 344) and* **Ourselves and Our Children** *(NWEC p. 542), this new book is by far the best on its subject — the most current information, warmly presented in real conversation with teenage peers. A dubious parent may ask, "Isn't all this information and variety — there's homosexuality and masturbation and God knows what in there — going to corrupt my kids?" More likely the opposite. The dominant lessons in the book are honesty and caring. A fine piece of work.* —SB

Changing Bodies, Changing Lives
(A Book for Teens on Sex and Relationships)
Ruth Bell et al.
1980; 242 pp.
$8.95 postpaid from:
Random House
400 Hahn Road
Westminster, MD 21157
or Whole Earth
Household Store



●

Some adults believe that they shouldn't tell teens about sex or birth control because that will only encourage them to try it. Actually, the opposite is true. Studies show that teens who have been given good sex education are *less* likely to get pregnant, *less* likely to get venereal disease, and *less* likely to have casual sex than teens who haven't been given good information. Also, teens who can be open with their parents about birth control are more likely to use it when the time comes.

●

If you use the diaphragm according to the instructions, and if you remember to *put it in before intercourse every time*, then it will keep you from getting pregnant. Irene, a seventeen-year-old from Los Angeles, told us:

My boyfriend and I are really close and he helps me put in my diaphragm. Like he'll put the jelly on for me and he'll hold me while I put it in. He's really into using birth control because once he got a girl pregnant and he nearly freaked out over it. He had to raise the money for her abortion, and it was a big scene. So he's as careful as I am.

●

Other teenagers we interviewed gave these reasons for having an abortion:

Joan (fourteen): I know what it's like to grow up without a father. My father left when I was three and my mother had to raise us alone. She had to go to work, and my brothers and I ran wild. I always felt bad about not having a father, so I don't want to do that to my kid.

Peggy (sixteen): My boyfriend wants me to have the baby. He says he'll support it. But I want someone to give me more than money. I want someone to help me take care of it — be a real father. I just can't see us being together for the next eighteen years!

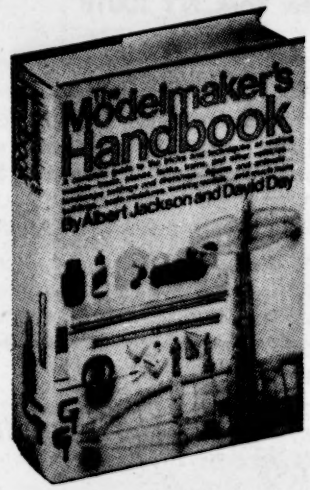
Mike (fifteen): I feel bad about Suzi having an abortion, but I know I'm not ready to be a father. I'm still a kid myself.

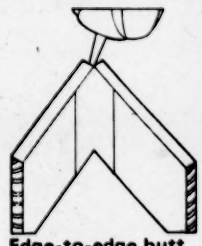
The Modelmaker's Handbook

An inspiring book for been-around modelers to revel in those added touches of finesse — the highlighted rivet, the shadowed canopy, the flattened wheel with realistic bulge. The authors have obviously dribbled enough glue to not let it mar their realistic weathered finishes. They are able to pass on their persnickety ways in a clear, well-drawn manner. A good guide for the enthusiast who wants to move on to other dioramas. —David Wills

There are utilitarian applications here (making a model of a landscape you're designing, for instance), but the real purpose of this craft is love of country — the imaginary miniature country you give life to with these methods. Also covers ships, planes, trains, and cars. —Art Kleiner

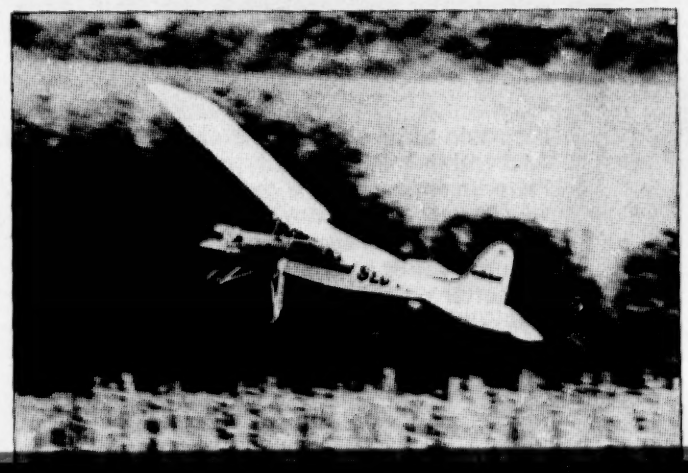
The Modelmaker's Handbook
Albert Jackson
and David Day
1981; 352 pp.
$20.95 postpaid from:
Random House
400 Hahn Road
Westminster, MD 21157
or Whole Earth
Household Store





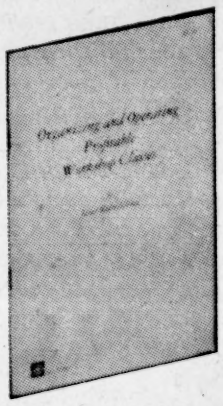
Edge-to-edge butt joint Lay the edges together and tape them along one side temporarily. Open up the joint, run white glue along it and close it again.

The model is called a Slo Fli because its large wing area allows it to fly at scale speed.



Organizing and Operating Profitable Workshop Classes

It's sort of shocking that ALL you need to know to turn your skill into a class can be compressed into so small and blithe a booklet. —SB



Organizing and Operating Profitable Workshop Classes
Janet Ruhe-Schoen
1981; 31 pp.
$2.50 postpaid from:
Pilot Books
347 Fifth Avenue
New York, NY 10016

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Teaching Adults

An informative, informal approach is successful with adults. They are your peers who share an interest with you, and some of them may become your good friends. They will, at first, regard you with a critical eye. It is important that you be well-organized and self-confident.

The old adage stands: be yourself. If you are bouncy and bubbly, don't try to be austere and dignified. If you are reserved, don't try to become a comedian. If you are slightly messy and tend to have ink on your fingers most of the time, don't start getting a weekly manicure just to impress your students.

Being well-organized and self-confident comes from knowing your material and knowing what you want your students to learn. You will then teach well, and your students will be satisfied.

Teaching Children

You must prove to adults that you have a firm grip on your subject. You must prove to children not only that you have a firm grip on your subject, but you also have a firm grip on them. . . .

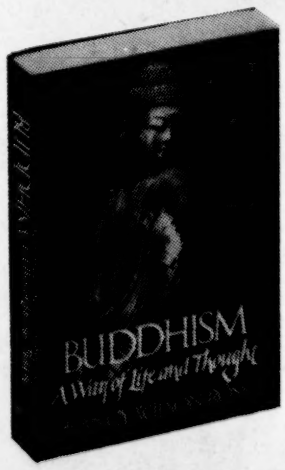
Let the children talk, laugh, and help each other while working. Your class should be very different from their public school experience. If it is, you may find that some children who are regarded by others as having problems are very well-adjusted while with you.

As with adults, let the children share their skills. Encourage them to praise each other and help each other. Let them talk and laugh while working, but don't feel that you must put up with intolerable noise.

Children are extremely inventive if allowed to be, and you may learn many new things from them and get a lot of ideas. If you demonstrate one way of putting something together, and notice Sue doing it another way, let her go. She may have found a way that is better than yours. Or she may have to learn that your way is best.

Buddhism

May become the definitive English language introduction to Buddhism. —Anonymous



Buddhism
(A Way of Life and Thought)
Nancy Wilson Ross
1980; 208 pp.
$6.95 postpaid from:
Random House
400 Hahn Road
Westminster, MD 21157
or Whole Earth Household Store

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Buddhism, the religion of reason and meditation, was born in India in the sixth century before Christ and, down succeeding centuries, spread over vast stretches of Asia. Today it is estimated that between one-third and one-fifth of the people on earth follow some aspect of this many-aspected religious philosophy, and their number is steadily increasing, not only in Asian countries like India — where Buddhism originated, declined and is now reviving — but also in modern Europe and America. Many modern Westerners now study and practice Zen; others have formed communities under the guidance of exiled Tibetans or have taken instruction in Theravada Buddhism with teachers from Burma, Sri Lanka or Thailand.

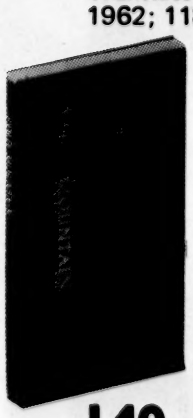
In a gentle way, without militant crusades or unyielding dogmatic emphases — with, on the contrary, the quiet force of what might be considered historic inevitability — Buddhism from its beginning slowly spread out from northeastern India. Moving southward and westward during and immediately after the founder's time and, later, far to the east by way of the legendary silk routes and maritime passages from the southeastern coasts of the Indian sub-continent and the adjacent converted islands, it became in time the dominant influence in vast sections of of Asia. Burma, Sri Lanka, Thailand, Cambodia, Vietnam, Laos, Mongolia, Tibet, Nepal, Bhutan, Sikkim, China, Korea and Japan are all countries which have been affected significantly by Buddhism. In the United States, Buddhist teaching centers are now scattered across the country from New England to California, and it is worth noting that in Hawaii, America's newest state, Buddhism is the major religious denomination.

During its long centuries of quiet pilgrimage by land and sea, much of Buddhism's powerful influence may have had its source in the deliberate avoidance of claims to exclusive Truth, adherence to inflexible dogma, or the authority of any final, sacrosanct, theocratic hierarchy. The "Come and see for yourself" attitude of the original Great Teacher, Siddhartha Gautama, who became the Buddha, the Enlightened One, his pragmatic insistence on "Don't take my word for it. Try it yourself!" the unswerving challenge of his famous aphorism, "Look within, thou art the Buddha" — all this served to lower the resistance that so often attends the arrival of a new and unfamiliar faith. There can be no doubt that Buddhism contained, and still contains, the power to evoke original responses from many different cultures. It has stimulated people of different ethnic backgrounds to quickened creativity, to new syntheses and syncretisms which, oftener than not, have transcended narrow regionalism. The many subtle cross-fertilizations which Buddhism helped foster in the past are most easily traceable in works of art, but they are also exemplified in much of the literature of different sections of Asia, notably of Tibet, China and Japan.

Cold Mountain

Some would call these the ultimate Zen poems. —Anonymous

Cold Mountain
(100 Poems by the T'ang Poet Han-shan)
Burton Watson, Translator
1962; 118 pp.
$7.20 postpaid from:
Columbia University Press
Stock Department
136 South Broadway
Irvington-on-Hudson, NY 10533
or Whole Earth Household Store



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A curtain of pearls hangs before the hall of jade,
And within is a lovely lady,
Fairer in form than the gods and immortals,
Her face like a blossom of peach or plum.
Spring mists will cover the eastern mansion,
Autumn winds blow from the western lodge,
And after thirty years have passed,
She will look like a piece of pressed sugar cane.

Drawing Down the Moon

Circle

OK, you guys, I'll be the first to agree that 99.9% of what's available on the market re witchcraft and occult is unadulterated crap. And, no, I'm not telling you about "the best of a bad lot" or endorsing resources that are only a wee bit ahead of the alternatives in their field.

Drawing Down the Moon *really is an intelligent, sensitive, well-researched, thorough, critical, and well-written study of the modern witchcraft scene. This book is important, in part, because it does an excellent job of dealing with subjects which are often misunderstood or misrepresented. No, Margot Adler didn't set out to tell her readers how to put hexes on their neighbors. Nor does Adler reveal the ancient secrets of the cosmos or provide a sneaky little peek of wicked witchcraft as practiced in suburbia. Adler's intent was to provide a serious account of the pagan phenomenon in modern America. Who are these feminists and ecologists and others who identify so closely with ancient nature religions?*

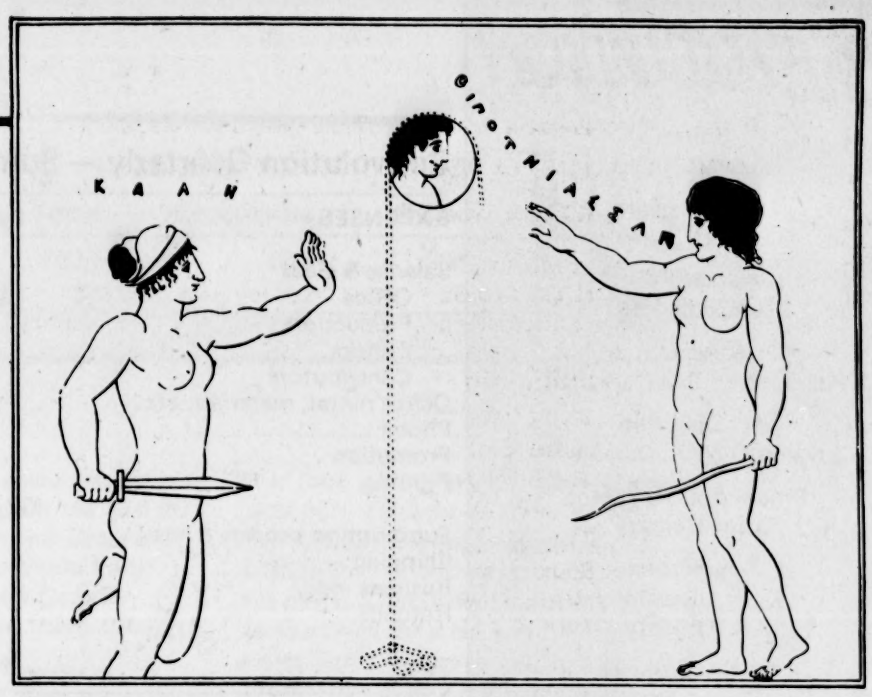
Clearly, there is a tremendous rising interest in what is sometimes referred to as Western mysticism. Both the ecology and feminist movements, especially, have sparked a renewed popular interest in the old pre-Christian rites of Europe. Popular interest in these themes is reflected in games such as **Dungeons and Dragons**, *popular books such as the Tolkien books and the fantasy art books, and in the current wave of sword-and-sorcery films. At a more serious level, however, there is a new generation of practicing pagans. These individuals (Adler is one) are often individuals who came of age during the 1960s and '70s. Many of them are attempting to identify a spiritual tradition linked to their continuing personal and social concerns. In looking back at the ancient nature religions — which often demonstrated a high regard for the spiritual experience of women — many of today's pagans are asking serious questions about the role of religion in society. Many pagans want a spiritual tradition compatible with both modern science and modern democratic values.*

Circle is a good source of references for anyone interested in making contact with pagans. It's also a good source of literature. Unlike some mystical groups, Circle isn't out to push its own vision of the universe to the exclusion of all other interpretations. Circle isn't a pagan missionary agency or a propaganda mill or even a true membership society. It functions as a nonprofit and nonsectarian information exchange for individuals and groups celebrating the "magickal ways of Nature." The current **Circle Guide** *lists over 200 Wiccan and pagan groups in North America in addition to over 50 Wiccan and pagan periodicals and more than 100 mail order suppliers of pagan-occult items. When people ask, "How do I make contact with American pagans?" I direct them to Circle.*

Adler and Circle are into something that's loose, democratic, concerned with ecology and appropriate technology, and constantly evolving to meet individual and community needs. This is religion without dogma and without hierarchies and high finance. Yeah, it's ragged and sometimes a bit silly and even presumptuous around the edges. Some of the lesser groups and "prophets" will have faded away before this note is six months old. But at the core of the pagan "movement" is something exciting and important and enduring. Rational mysticism? A blending of high-brow philosophy with community concerns? Scientific humanism with a spiritual element?

Something like the Neo-Pagan spirit may be what it takes to bring humanity safely into the next century.

—Martha Burning



Drawing down the moon: one of the few known depictions of this ancient ritual, from a Greek vase probably of the second century B.C.

Drawing Down the Moon
(Witches, Druids, Goddess-Worshippers, and Other Pagans in America Today)
Margot Adler
1980; 455 pp.
$9.95 postpaid from:
Beacon Press
25 Beacon Street
Boston, MA 02108
or Whole Earth Household Store

Circle Network News
Selena Fox, Editor
$7 /year (4 issues)

Circle Guide to Wicca and Pagan Resources
Selena Fox
1981; 150 pp.
$7.95 postpaid

both from:
Circle
P.O. Box 9013
Madison, WI 53715

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In the last ten years, alongside the often noted resurgence of "occult" and "magical" groups, a diverse and decentralized religious movement has sprung up that remains comparatively unnoticed, and when recognized, is generally misunderstood. Throughout the United States there are many hundreds, perhaps thousands, of groups in this movement, each numbering anywhere from several to several hundred. Eclectic, individualist, and often fiercely autonomous, they do not share those characteristics that the media attribute to the "new religions." They are often self-created and *homemade*; they seldom have "gurus" or "masters"; they have few temples and hold their meetings in woods, parks, apartments, and houses; in contrast to most organized cults, money seldom passes from hand to hand and the operations of high finance are nonexistent; and entry into these groups comes through a process that could rarely be called "conversion."

—Drawing Down the Moon

•

Much of the theoretical basis for a modern defense of polytheism comes from Jungian psychologists, who have long argued that the gods and goddesses of myth, legend, and fairy tale represent archetypes, real potencies and potentialities deep within the psyche, which, when allowed to flower, permit us to be more fully human. These archetypes must be approached and ultimately reckoned with if we are to experience the riches we have repressed. **—Drawing Down the Moon**

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CoEvolution Quarterly — Summer 1981 Financial Report

EXPENSES	Feb, Mar, Apr	May, Jun, Jul
Salaries & Fees		
Office	$ 25,305.97	$ 23,041.52
Production	10,261.48	10,847.39
Editors	13,440.80	12,061.05
Contributors	7,490.00	6,700.00
Office rental, materials, etc.	23,304.99	17,374.03
Phone	1,980.09	1,737.90
Promotion	833.42	604.89
Printing	37,929.09 (52,000 copies)	41,337.61 (52,000 copies)
Subscription process & mail	19,845.35	19,905.19
Shipping	1,337.45	1,307.68
Business reply	900.00	1,200.00
Refunds	900.00	400.00
Total	$143,528.64	$136,517.26
INCOME		
Subscriptions, gifts and renewals	$ 66,289.94	$ 90,581.80
Retaining & sustaining	2,123.36	—0—*
Maniacal subscriptions	—0—	1,000.00
Back issues	2,354.00	2,380.00
Distribution	16,614.40	15,639.50
Total	$ 87,381.70	$109,601.30
NET GAIN OR (LOSS)	**($ 56,146.94)**	**($ 26,915.96)**

*discontinued

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POINT Financial Report

	May, Jun, Jul 1981
CQ (detail above)	
Income	$109,601.30
Expense	136,517.26
NWEC	
Income:	
Royalties	123,424.11
Other sales	3,830.20
Expense	38,964.57
Other products (posters, maps, T-shirts, etc.)	
Income	5,700.45
Expense	504.27
POINT	
Income	99.94
Expense	1,627.37
TOTALS	
INCOME	$242,656.00
EXPENSE	$177,613.47
NET GAIN OR (LOSS)	**$ 65,042.53**

POINT Balance Statement 31 July 1981

Assets	
Cash in bank	$ 4,640.98
Investments	124,261.91
Accounts Receivable Distributors	38,492.15
Inventory	
Back issues, CQ	175,736.80
Other products	4,915.94
Liabilities	
Accounts payable	—0—
Subscriber liability	292,496.00

This publication is available in microform.

CQ microfilm and reprints

Those rare, out of print back issues that you've all been asking for are now available from University Microfilms International of Ann Arbor, Michigan. In addition to microform copies, they will also be selling xerographic reprints of entire issues, as well as individual articles. Issue reprints run 20 cents per page, with a $20 minimum, soft-bound. Hard covers are available for $3 to $5 extra. Articles are $10 for the first copy, regardless of length, and $1.50 for each additional copy. Prices vary for microfilm and microfiche, so readers and libraries should inquire for a price quotation. Write to:

University Microfilms International, Serials Bid Coordinator, 300 North Zeeb Road, Ann Arbor, MI 48106. Or 30-32 Mortimer Street, London W1N 7RA, England.

Issues 14 through 26 and 28 through 30 can still be purchased from us for $3 each. (No. 27 was **The Next Whole Earth Catalog** *and is not available as a back issue from us or from University Microfilms.) —David Burnor*

ITEMS in Second Edition THE NEXT WHOLE EARTH CATALOG	Books	Magazines	Tools	Companies	Other	TOTALS
Updated from First Edition	1808	417	322	614	361	3522
New in Second Edition	218	45	44	52	26	385
TOTALS in Second Edition	2026	462	366	666	387	3907

"Or Whole Earth Household Store"

That phrase under access information in the **CoEvolution Quarterly** means you can mail order the item from:

Whole Earth Household Store
Fort Mason Center, Building D
San Francisco, CA 94123

All orders: Add $2 packaging and delivery per order.

Rush orders U.P.S. (United States): 40 cents additional charge per book.
Foreign orders (surface mail): 50 cents additional postage per book past the first two. International Registry Insurance (add $3 per order) is recommended.
California delivery: Add 6% tax (BART counties 6½%).
VISA/MasterCard orders accepted.
Telephone (415) 441-7250

Or visit the new Household Store in San Francisco's Fort Mason Center, Building D, open from eleven to six, Tuesday through Saturday.

Do not send Household Store orders to **CoEvolution Quarterly.**

Gossip

The question of the season is: should you, a **CQ** *regular, invest the $16 for a "next Next" – the new Second Edition of* **The Next Whole Earth Catalog***? You have till October, when it comes out, to think about it.*

As the chart shows, 10% of the Second Edition is new since last year – 385 new items replacing previous items that are now less good or are no longer available. All but 60 or so of those items appeared in **CQ** *sometime in 1981. For the regular* **Catalog** *user what is more important than the new stuff is that all the access and evaluation in the new edition has been updated, even the excerpts from other people's catalogs. The standard we set for ourselves was that every one of the thousands of inflating dollar figures in the Second Edition would be correct for late 1981 and that every evaluative word in the book would read as if we had made the* **Catalog** *new from scratch this year.*

That took a bit of work. Also risk, it turns out. The cost of assembling the First Edition last year was $230,000. The cost of assembling this one is $106,000. That seems damned high for a revision, but it shows how time-dependent our information is, and it justifies my feeling that if we did not do a new edition, the **Next Catalog** *would have been a very perishable good in 1982. It's fortunate we're the publisher. If our distributor, Random House, were the publisher, there would be no new edition this year.*

Random had some good reasons for advising against a new edition so soon. The 30,000 or more copies of the First Edition that are left in inventory will have to be destroyed at a considerable loss (the $95,000 it cost to print them plus the $73,000 POINT would have made when they were sold – ayeee). Bookstores, as soon as they hear of a new edition, are apt to return the First Edition*

**See footnote next page.*

CoEvolution is indexed

Alternative Press Index *and*
Access: The Supplementary Index to Periodicals
both are in many libraries, and both routinely index the articles in **CoEvolution Quarterly**. *It's about time we did our own yearly index, isn't it?* –SB

Aw

(One of the pleasures of working here is that our contributors are often pleased with how their material is handled compared to their treatment at other magazines. This letter is from the authors of "'Where've You Been, Stranger?': Disintermediation in the Maritimes" in the Summer '81 **CQ**. *We're printing it to shame other magazines into similar or even better respect for the people who make their publications possible. If some of you writers want to tell us true-life atrocity stories of maltreatment by other magazines, we might print them and pay you promptly.* –SB)

CoEvolutionists: We have never been so well treated! Your editorial practices are exceptionally prompt, efficient, and thoughtful. We suspect that even a rejection slip from you folks would be a pleasant experience.

In this economic climate a quick check from a publication is grounds for celebration. And page proofs! And free copies! And a subscription! Gosh.

We thought **CQ** was supposed to be a bunch of California crazies. You are real pros. Our special thanks to Stephanie, Andrea, and Stewart.

Gratefully Delighted,

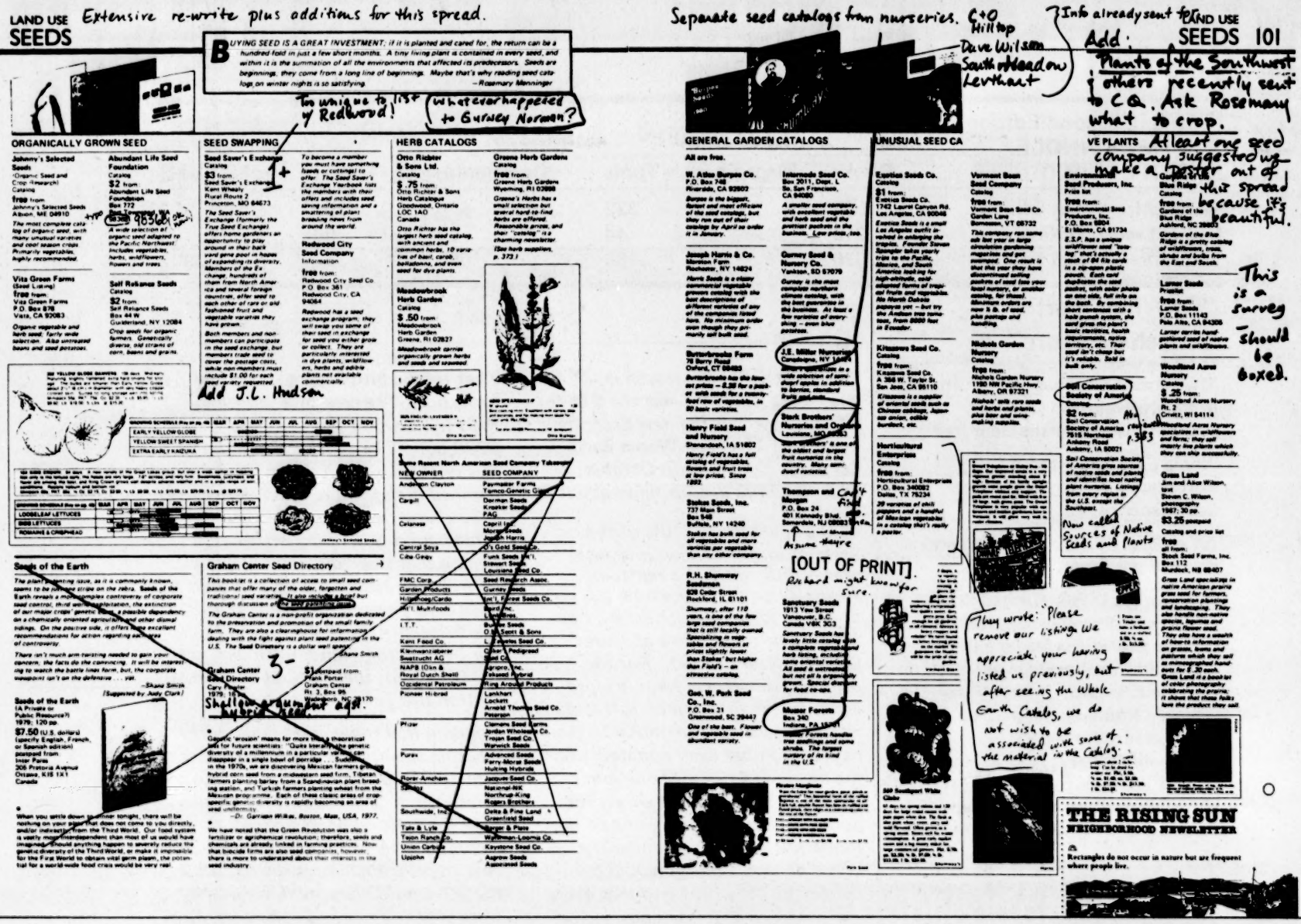
Bryce and Margaret Muir
Jonesport, Maine

BOX 428 SAUSALITO CA 94966

THE RISING SUN
NEIGHBORHOOD NEWSLETTER

Rising Sun wants you!

Kathleen O'Neill and I are working on a book for Random House called *The Rising Sun Neighborhood Newsletter*, to be published in the summer or fall of 1982. It will have many of the *Rising Sun* items from the lower right hand corner of the *Catalog*, some longer rants and stories, many odd/interesting/beautiful graphics, and lots of new stuff. So if, in the next couple of months, a friend says something you've never thought of before, a picture takes you somewhere you've never been before, if you think yet again about that story you read or lived or dreamed that you can never forget, if something you see, hear, touch, taste, feel goes straight to your soul and tingles and you don't know why, write it down, copy it, send it to me, and it might get in the book. If you send a self-addressed stamped envelope, I'll send you a copy of someone else's goody. What we're looking for is food – what is it that keeps you going? What nourishes you and makes you more alive? Whatever it is, pass it on – to your friends, and to me. Thank you. –Anne Herbert



The seed spread in the First Edition of The Next Whole Earth Catalog **as marked by a half-dozen editors involved in the revision for the Second Edition.**

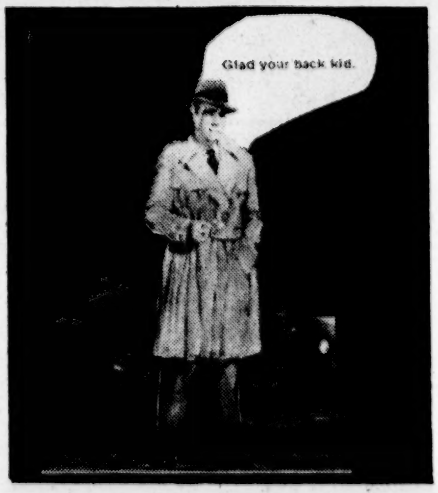
copies they have and leave the stores empty for the intervening months. A new edition only a year later is just too rapid, it's unheard of in the business — i.e. too damned risky. But what, I say, is the risk of letting the book become publicly stale by not reediting? To their credit, when Random House realized we were adamant in making the attempt, they swung their considerable weight fully behind the decision.

To add to the poignancy of the experiment, we test at Christmas, the most volatile high-stakes time of the year, when most bookstores do over half of their year's business. There's no time to adjust. If you print too few books, Christmas is gone before you can reprint. When you print too many, if they don't sell at Christmas they may never sell and you lose your shirt. Exciting, huh? We're printing 100,000 for the trade (plus 50,000 for Quality Paperback — a division of Book-of-the-Month Club which made **The Next** *a Selection for December) and crossing our fingers, toes, teeth, and eyes.*

So now it's in your court, Joe Customer. Is the Second Edition a worthy, timely gift for your friend? Is it an overhaul worth having on your own well-used **Next Whole Earth Catalog**? *Yes and probably yes, Joe. It's a better tool than ever.*

Art Kleiner, who sweated the longest on the Second Edition, was first to escape on vacation — a month aboard a bicycle in backroad New England, the frenzy of simultaneous **CQ** *and* **Catalog** *productions far behind. Meanwhile Olde Englande has been entertaining native son Jonathan Evelegh for several months while he decided whether that country was the problem or the solution. Conclusion: he is coming firmly back to California.*

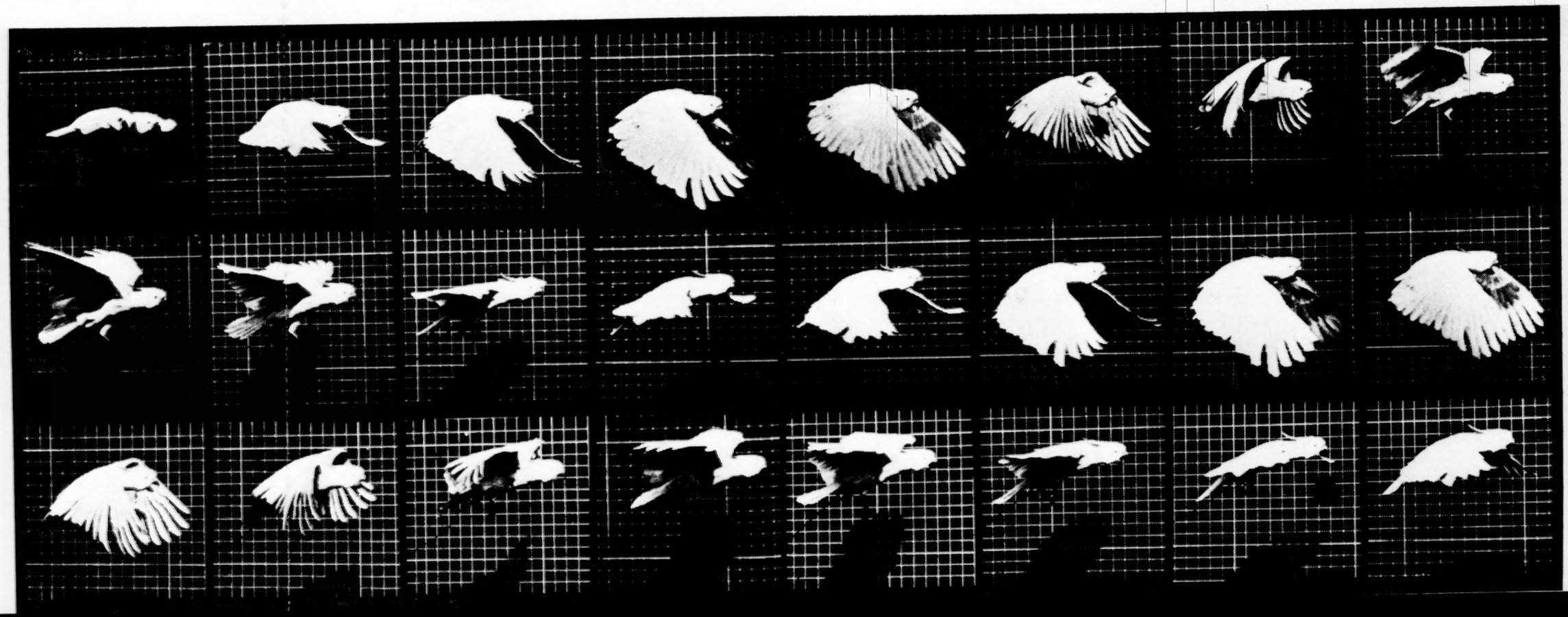
Kara Adanalian, our Armenian typesetter, hauled off and got married. (The only people on our staff who get married are the typesetters, and they all do.) New hubby is carpenter Neil Wilbert, who gets to keep his last name as Kara keeps hers. The wedding, at a Victorian mansion in San Rafael, was a notable blast. Since the bride (in off-white) is a Humphrey Bogart fan, "As Time Goes By" from **Casablanca** *was sung during the ceremony. The rock band at the reception slightly nonplussed the fox-trotting middle-aged guests but was no problem at all for the folk-dancing elder Armenians in the family.*



He was waiting at the IBM Selectric when Kara returned from her one-day honeymoon.

Oh, the giddy life in California. Every so often one of you readers lets us have it on that subject, and justifiably. My favorite is from Wes Jackson of The Land Institute in Salina, Kansas. At a Bay Area conference stacked with smug Californians he remarked, "California's too easy. Any fool can appreciate California. It takes subtlety and attention and character to appreciate Kansas." —SB

**Yes, we might recoup some of the loss by remaindering the leftover First Edition copies, but I'm disinclined to purvey old information when there's better available. If someone wants to buy up large quantities for schools or cheap foreign distribution or something, we might consider that. "Save these helpless books from destruction! [Stark photo of coldly efficient book-pulping machine.] Send large dollops of money!"*



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This cockatoo flying is the 748th plate in Eadweard Muybridge's series of the 781 motion studies. The backdrop is black muslin and white cords strung up in five centimeter squares to give scale. He made studies using an array of cameras that he designed. Each array was a long bellows divided into twelve parts with a lens in each part. (This plate of 24 pictures was done with 2 arrays.) Muybridge liked to be able to move many cameras at once because "a quick change in camera position was often needed to produce a successful series." Muybridge used a circuit breaker, a long pole, and rubber bands to operate the shutters of the cameras in sequence. —Anne Herbert

Information and photos from Eadweard Muybridge's **Complete Human and Animal Locomotion,** 1887, 1979; 3 volumes, 3265 pp. (introduction by Anita Ventura Mozley). It is available for $100 postpaid from Dover Publications, 180 Varick Street, New York, NY 10014.

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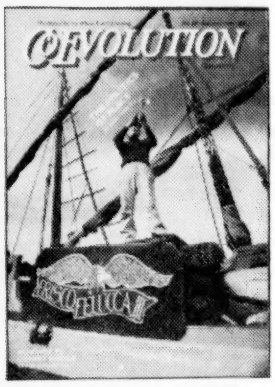
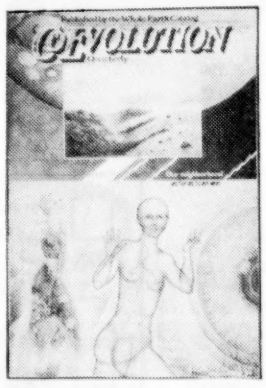
BACK ISSUES $3

Issues 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, and 30 are available. (Issue 27 was **The Next Whole Earth Catalog** and is not available as a back issue.) The current issue of the **CoEvolution Quarterly** is $4.

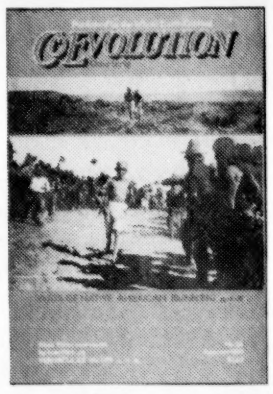


No. 30, Summer 1981
Local politics praised in "The Politics of Place" by Karl Hess and "Local Shadow Government" by Michael Phillips. "How Not to Commit Suicide" researched in detail by Art Kleiner. Inflation exposed as an illusion by Paul Hawken. Also news about investing successfully when you don't have much to invest ($50 to $5000); building ponds as a form of sculpture; making love in space; bringing Wendell Berry to speak at Purdue University in the heart of agribusiness country; and coppicing with standards — combining fast-growing, shorter trees with full-grown trees to produce both firewood and timber.

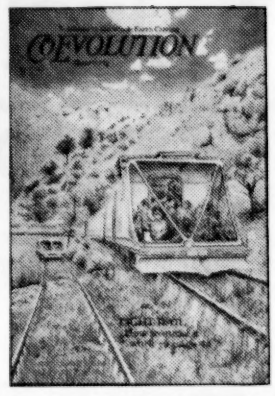
No. 29, Spring 1981
Robert Frank's first still photographs in years on the covers and a report on his new movie inside. Articles on computer slang; homeopathy; the life of a secretary; the solar sail as a way to cheap space travel; Deep Springs — a unique alternative college that has been working for 65 years; and disintermediation, the economic process that frees people from inflationary institutions.



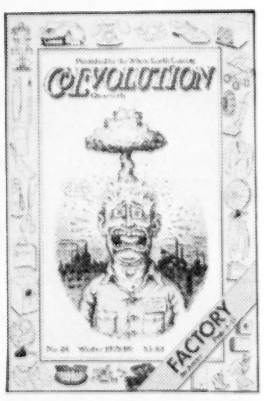
No. 28, Winter 1980
Guest edited by Anne Herbert. Includes an account of the death of Gregory Bateson by his daughter Mary Catherine; the story of Ed Ricketts, the marine biologist who was the model for John Steinbeck's character Doc; an attack on the evils of circumcision; good news about neighborhood life from the editor and others; Orville Schell on the dangers of feeding antibiotics to livestock; and "Learning to Live with Ambiguity" by Stephanie Mills.



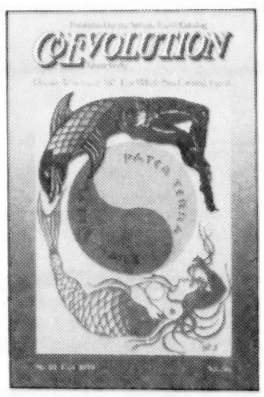
No. 26, Summer 1980
Native American running — done over very long distances as an integrated part of life; Ivan Illich on vernacular values; Lynn Margulis on a new theory of how evolution happens; Michael Phillips on "New Age Doctrine Is Out to Lunch on Three Issues: Villages, Recycling, Democracy"; Paul Hawken on "What's Economical?"; and an extensive article on amateur insemination by lesbians.



No. 25, Spring 1980
Turning back the desert by planting trees; using light rail to revive public transportation; a report on Lynn Margulis' early difficulties and current success as a microbiologist; James Lovelock on being a self-employed scientist; "Our Enemies Our Selves" (on Russia); reader answers to questions about daily life; an article on shramadana — accomplishing community projects in Sri Lanka through sharing human energy; the life and opinions of Nepali Aama, a sensational old lady of the hills of Nepal; and reader letters about the R. Crumb factory cover.

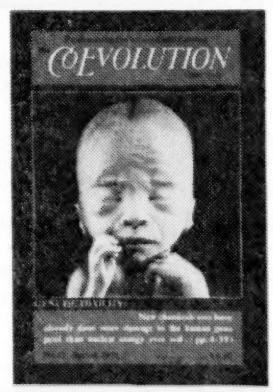


No. 24, Winter 1979/80
The dehumanizing horror of factory work presented in a major poem illustrated on the cover by R. Crumb; how corporate patenting of seeds will cause hundreds of plant species to be lost forever; new wave music explained by insiders and outsiders; articles on how good solar home designs and humane hospital designs existed in the past and were lost to modern "efficiency"; and Gregory Bateson on ending the arms race.

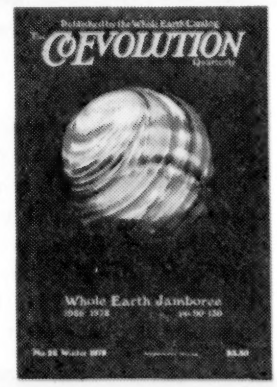


No. 23, Fall 1979
Guest edited section by George Putz and Peter Spectre on oceans: John Todd on ocean arks; Phil Conkling models the global carbon cycle; articles on boat restoration, the future of the fishing business and anti-submarine warfare. Plus 30 pages of reviews and access in the Whole Sea Catalog.

No. 22, Summer 1979
Reports on personal computer networks used cross-country for everything from gossip to business conferences to fantasy games; the Oregon women who forced the EPA to ban the herbicides that cause birth defects and miscarriages; the late E.F. Schumacher's belief that tree crops can save British agriculture; and the man who avoided banks and financed his own home by borrowing $10 each from dozens of friends.



No. 21, Spring 1979
How chemicals are harming our genes; Dan O'Neill defying the U.S. Supreme Court by drawing Mickey Mouse; Judy Chicago on "Revelations of the Goddess"; most used magazines reviewed by Nicholas Von Hoffman, Ursula Le Guin, William Irwin Thompson, Margo St. James, Ernest Callenbach, Robert Rodale and many others.



No. 20, Winter 1978/79
Fifty-six 5-minute speeches by such **CQ** regulars as Theodora Kroeber, Sam Keen, David Brower, George Leonard, Wavy Gravy, Paolo Soleri, J. Baldwin, Ron Jones, Peter Warshall, etc. Also a proposal for immediate world peace, reports on street performing, a self-sufficient solar home, edible landscapes, and excerpts from Anne Herbert's **Rising Sun Neighborhood Newsletter**.

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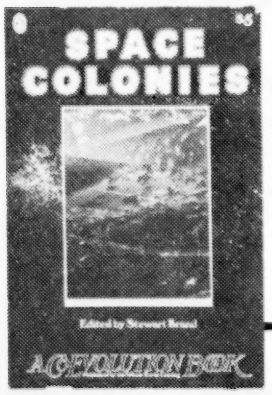
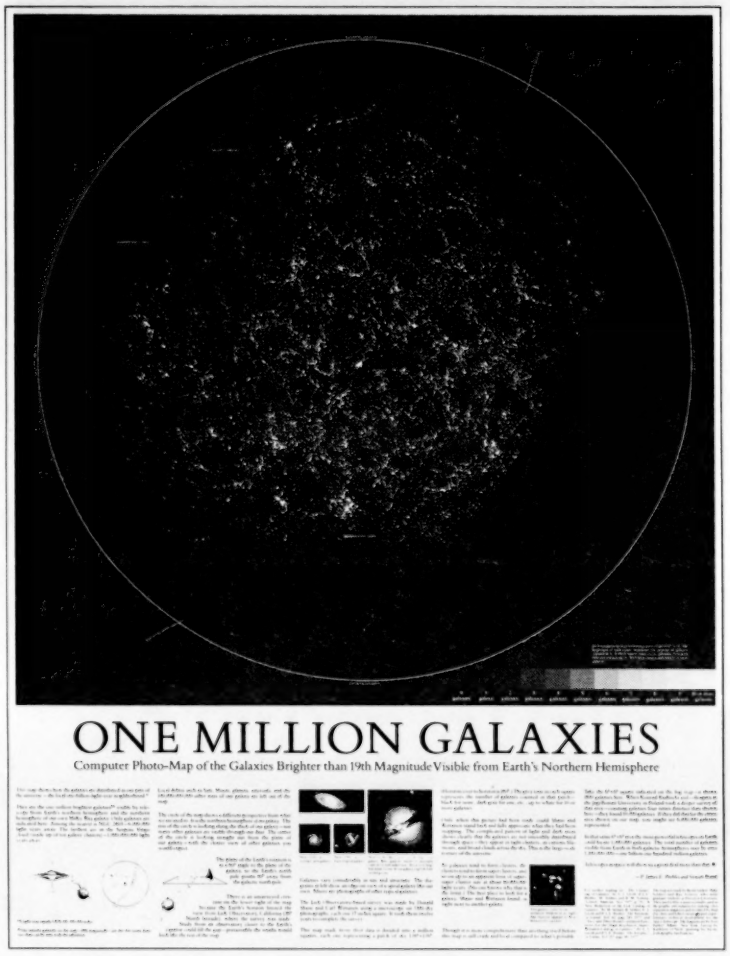


Space Colonies book $5

The space colony dream and recent space efforts evaluated by physicist Gerard O'Neill, astronaut Rusty Schweickart, Carl Sagan, Governor Jerry Brown, E.F. Schumacher, Ken Kesey, Paul Ehrlich, Paolo Soleri, John Todd, R. Buckminster Fuller, and many others. 160 pages, indexed.



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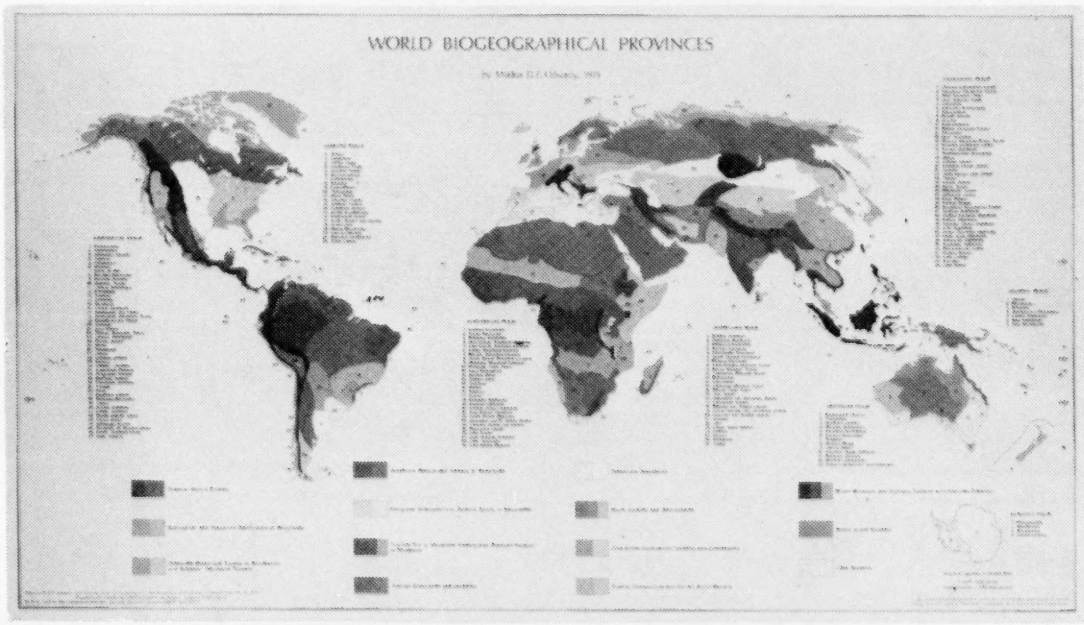
—Philip Morrison, **Scientific American**

World Biogeographical Provinces Map $3.50

Charting biological politics which transcend nationality, Miklos Udvardy's map "can be a guide to locating the kind of country in which you feel at home," says Ray Dasmann, whose classic article "Biogeographical Provinces" accompanies the map. The first two printings of this 39" x 22" wall-full sold out; the third presented an opportunity for correction and refinement.



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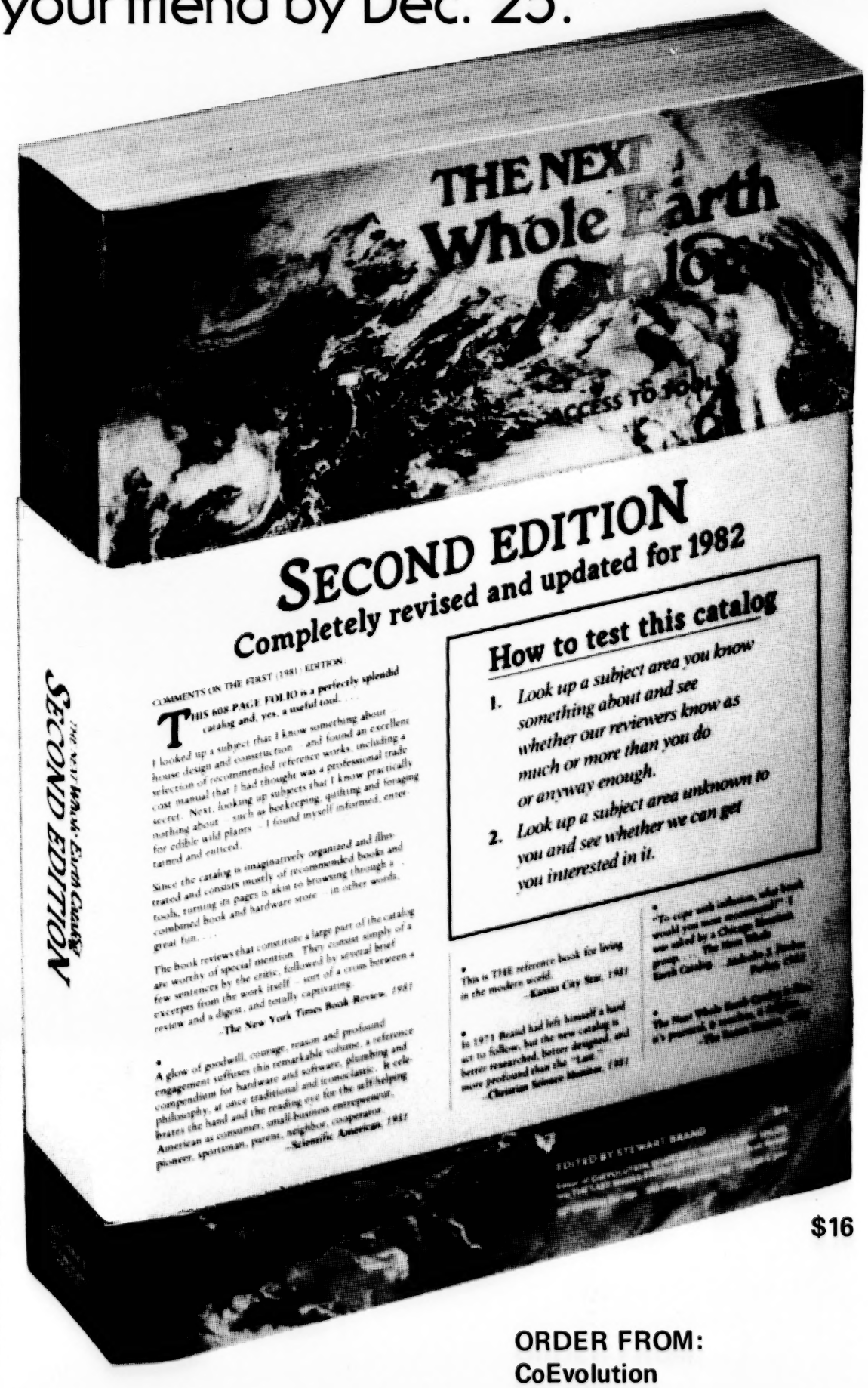

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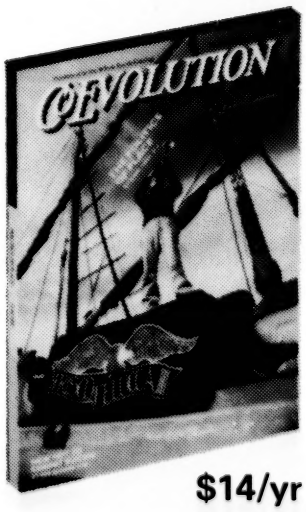
The partial dust jacket on the Second Edition **Next** is called a "belly band" in the business. Production editor Nancy Dunn refers to ours as a cummerbund.



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